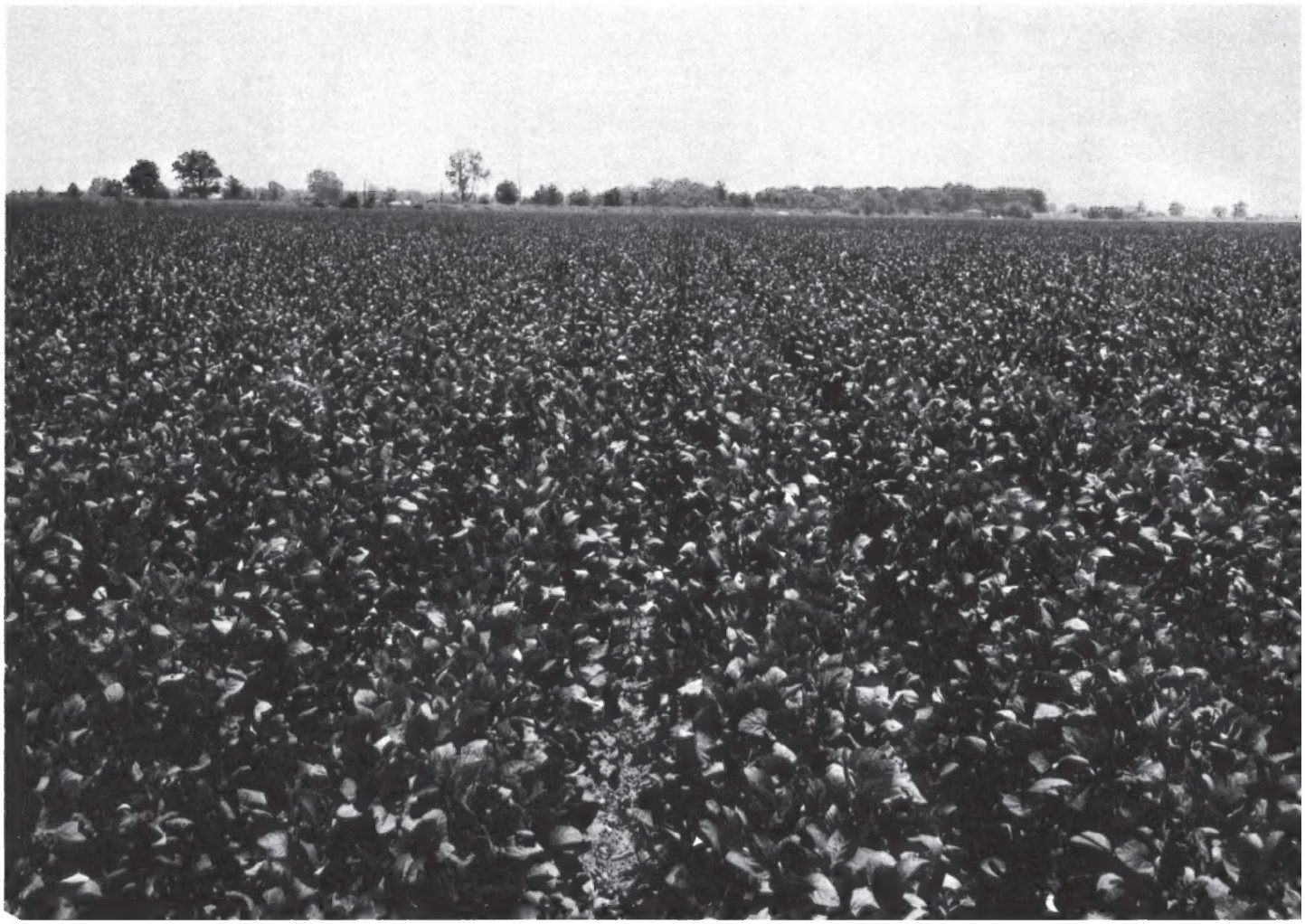
SOIL SURVEY OF
Crittenden County, Arkansas



United States Department of Agriculture
Soil Conservation Service
in cooperation with
Arkansas Agricultural Experiment Station

Issued October 1974

Major fieldwork for this soil survey was done in the period 1964–69. Soil names and descriptions were approved in 1970. Unless otherwise indicated, statements in this publication refer to conditions in the county in 1970. This survey was made cooperatively by the Soil Conservation Service and the Arkansas Agricultural Experiment Station. It is part of the technical assistance furnished to the Crittenden Conservation District.

Either enlarged or reduced copies of the soil map in this publication can be made by commercial photographers, or they can be purchased on individual order from the Cartographic Division, Soil Conservation Service, USDA, Washington, D.C. 20250.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation.

Locating Soils

All the soils of Crittenden County are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with a number on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all the soils of the county in alphabetic order by map symbol and gives the capability classification of each. It also shows the page where each soil is described.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions.

Game managers, sportsmen, and others can find information about soils and wildlife in the section "Use of the Soils for Wildlife."

Community planners and others can read about soil properties that affect the choice of sites for nonindustrial buildings and for recreation areas in the section "Use of the Soils for Town and Country Planning."

Engineers and builders can find, under "Use of the Soils in Engineering," tables that contain estimates of soil properties and information about soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in Crittenden County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given at the beginning of the publication.

Cover: **Cotton on Dubbs silt loam, gently undulating.**

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Contents

Issued October 1974

SOIL SURVEY OF CRITTENDEN COUNTY, ARKANSAS

BY JAMES L. GRAY AND DICK V. FERGUSON, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE ARKANSAS AGRICULTURAL EXPERIMENT STATION

CRITTENDEN COUNTY is in east-central Arkansas (fig. 1). Channels of the Mississippi River, some now abandoned, form the eastern and southern boundaries. The county is bounded on the west by Lee, St. Francis, and Cross Counties, and on the north by Poinsett and Mississippi Counties. It is irregular in shape, but is roughly triangular. It has a maximum length of about 42 miles and a maximum width of 24 miles. The county has a total area of about 414,720 acres, or 648 square miles.

In 1970, the population was about 48,300. The city of West Memphis, the largest in the county, had a population of about 25,800 in 1970. Marion, the county seat, had a population of 1,634. Many of the people in West Memphis commute across the Mississippi River to jobs in the Memphis, Tenn., metropolitan area; others work in local industries. Farming and related business account for most of the income in the county.

General Nature of the County

Crittenden County is entirely on the bottom land of the Mississippi River. It is part of the immense deltaic flood plain that reaches from Cairo, Ill., to the Gulf of Mexico. The elevation ranges from about 165 feet to 230 feet above sea level. The highest elevation is atop the natural levee in the northeastern part of the county, and the lowest is on river sandbars at the southern end.

The soils in the county are among the most fertile and productive in the State. Most of the soils contain moderate to large amounts of plant nutrients.

The entire county was subject to frequent flooding by the Mississippi River and its local tributaries until the levee along the river was constructed. Now the hazard of major floods is negligible except in the area between the levee and the river, which is only 8 to 10 percent of the county. Floods come mainly between January and June. Most years, the flooded soils dry early enough that warm-season crops can be planted.

In the area protected from flooding, the soils are predominantly clayey and poor drainage is the main limitation. Water drains slowly from the higher elevation, where the soils are predominantly loamy, and collects on the lower lying, clayey soils.

Farming

The farm area in Crittenden County extends from the higher parts of the natural levee along the Mississippi River. According to a recent inventory, about 306,000 acres is cultivated.

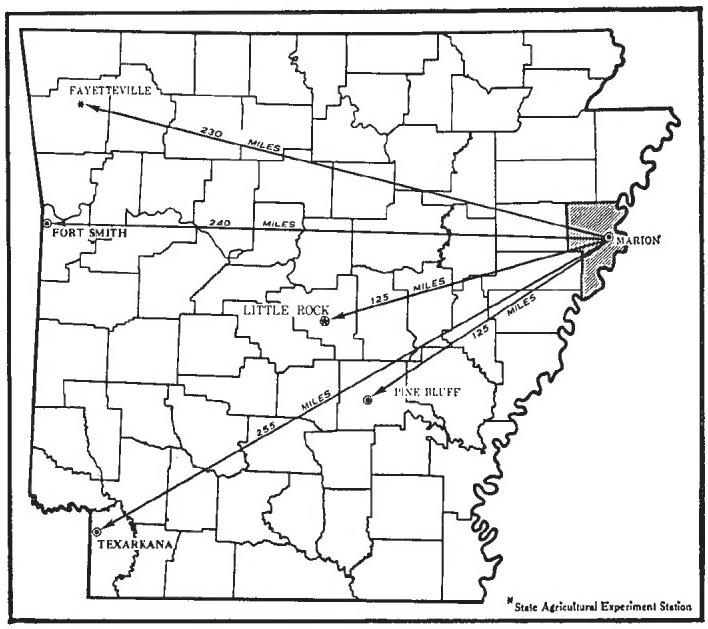

Figure 1.—Location of Crittenden County in Arkansas.

The early economy of the county was based on the plantation system, and cotton was the main cash crop. Since 1933, when the first allotment was placed on cotton, the importance of that crop has declined. Now, most of the farms are general farms and cropping systems have become more diversified. Soybeans, cotton, and wheat are the chief crops. Rice, grain sorghum, and alfalfa are also grown. A few farms have herds of beef cattle. As machinery has replaced livestock as a source of power, the acreage in corn has decreased. Acreages in soybeans, small grain, and alfalfa have increased.

According to the 1964 Census of Agriculture, about 90.4 percent of the acreage in the county was in farms. Acreages of principal crops in 1959 and 1964 are shown in table 1.

Farms in Crittenden County are decreasing in number and increasing in size. Between 1959 and 1964, the number of farms decreased from 1,917 to 1,093, and the aver-

age size increased from 183 to 330 acres. Large farms are increasing in number, but small farms are decreasing. In 1959 there were 96 farms of 1,000 acres or more, and by 1964, farms of this size had increased to 104. In 1959 there were 1,326 farms of less than 50 acres, but by 1964 the number of farms of this size decreased to 626. Of the farm operators in the county in 1964, 207 were full owners, 195 were part owners, 26 were managers, and 665 were tenants. Of these operators, 344 held part-time jobs off the farm.

TABLE 1.—*Acreage of principal crops for stated years*

Crops	Acres in 1959	Acres in 1964
Soybeans (harvested for beans)	138, 437	159, 880
Cotton	96, 615	93, 420
Wheat	9, 266	35, 128
Rice	5, 189	6, 503
Alfalfa and alfalfa mixtures	2, 582	4, 988
Sorghum (harvested for grain)	2, 471	1, 153
Pasture	11, 811	7, 412

Except for beef cattle, the number of livestock in the county has been decreasing for several years. Most beef cattle are of good grade. Dairy cattle are generally of poor quality and are kept mainly for home use. Table 2 gives the kind and number of the principal livestock in the county in 1959 and 1964 and the number of chickens.

TABLE 2.—*Number of livestock and chickens in stated years*

Livestock and chickens	Number in 1959	Number in 1964
All cattle and calves	6, 693	6, 749
Milk cows	401	86
Hogs and pigs	8, 760	3, 967
Chickens [1]	52, 845	30, 087

[1] More than 4 months old.

Farm-related industrial enterprises in the county are varied. They include cottongins, cotton compresses and warehouses, cottonseed and soybean oil mills, alfalfa dehydrators, soybean and grain elevators and dryers, and farm implement companies.

In this county most of the farms are family size. The family does most of the work, but outside labor is hired occasionally in peak seasons. The larger farms are operated either by tenants, or by day laborers who are supervised by the owner or manager. Tenants pay either a fixed rent or a percentage of the crop for the use of the land. In recent years the trend has been toward hiring day laborers.

The amount of equipment and the facilities available on the farms in the county vary widely. The larger farms are highly mechanized, and most of the other farms are considerably mechanized. Most farmers fertilize according to the needs of the crop, and many farmers use chemicals for weed control

Woodland [1]

When the first settlers came, Crittenden County was covered with dense forests of mixed hardwood trees. The rich alluvial soils supported some of the best hardwoods in the South. The principal species were sweetgum, cottonwood, hackberry, pecan, baldcypress, ash, sycamore, persimmon, and oak, mainly southern red, Shumard, cherrybark, water, willow, pin, overcup, and swamp chestnut.

In recent years much of the acreage has been cleared, and the original forest cover has been reduced to about 10 percent or less of the land area. If the present trend continues, the acreage in woodland will be further reduced until about all of the woodland remaining in the county will be in such areas as the Wapanocca National Wildlife Refuge, a few private hunting clubs, the narrow bands along the large drainageways, and the scattered tracts on the river side of levees.

Because the woodland acreage in the county is small and is steadily decreasing, no woodland interpretations are given in this survey. Local representatives of the Soil Conservation Service can be consulted for specific information on uses of the soils as woodland.

Physiography and Drainage

The geological deposits on the surface of Crittenden County are alluvium from the Mississippi River, and these deposits are the parent material of the soils in the county. Total thickness of the sediment exceeds 100 feet. The alluvium is a mixture of minerals from throughout the Mississippi River Basin. It is derived from many kinds of soil, rock, and unconsolidated sediment from more than 24 States.

Topography of the county is generally level to gently undulating. It ranges from broad flats to areas of alternating swales and low ridges. Except along a few streambanks, local differences in elevation are minor. Slopes are generally less than 1 percent, but are as much as 3 percent on the sides of some low ridges.

The drainage is generally southward through a system of artificial channels and natural drainageways. The county is well supplied with streams, bayous, and lakes. The major natural drainageways are the Mississippi River, the Tyronza River, Tenmile Bayou, Fifteenmile Bayou, and Big Creek. The area protected by the levee of the Mississippi River drains into the St. Francis River, which in turn, empties into the Mississippi River. The area on the river side of the levee drains directly into the Mississippi River.

The many streams and the lakes, such as Horseshoe, Meneshea, Swan, Porter, Hopefield Chute, Wapanocca, and many others, furnish an abundant supply of surface water for recreation, farming, and industry. The supply of ground water is abundant. Wells 8 inches in diameter and drilled to a depth of about 110 feet yield an unfailing flow of fair to good quality water at the rate of about 1,700 gallons per minute.

[1] By MAX D. BOLAR, woodland conservationist, Soil Conservation Service.

Climate [2]

Crittenden County is in the east-central part of Arkansas on the typically level and gently undulating flood plain of the Mississippi River. Variations in elevation are minor, and local topography has no noticeable effect on the climate. Table 3 is a climatic summary of temperature and precipitation at nearby Memphis, Tenn. Data shown are considered representative for the county.

The climate of the county, like all of Arkansas, is one of warm summers and mild winters. Commonly, there are winter storms and outbreaks of polar and even arctic weather, but these intensive cold and snow fronts are of short duration. Outdoor work can be done during much of the winter season.

Spring is the season of the most abrupt and violent weather changes. Strong frontal passages are often accompanied by turbulent weather. Summers are normally long, warm, and humid with high dewpoints. The county is sufficiently close to the Gulf of Mexico to experience excessive precipitation during the summers. Furthermore, the Mississippi River and its adjacent marshes and lakes, along with flooded rice fields, contribute somewhat higher humidity than would otherwise be the case. Relative humidity averages about 70 percent during the year. Uncomfortable warmth and humidity combined are likely from mid-May to mid-September.

In fall, days are warm and nights are cool. This is normally the driest season and commonly the most pleasant. Early winter cold fronts and sharp drops in temperature are common late in October and early in November. However, these are usually not characterized by significant turbulence as are those in spring.

Temperature extremes in the county reveal a wide range of weather types in the area. Winter temperatures normally average above freezing, but minimums are often in the teens. Record extremes are below zero for the three winter months. In contrast, summers normally have 65 or more days with temperatures of 90°F. or higher. Summer temperatures can be expected to reach 100° or higher for as many as 6 days in a year, but such high temperatures are not experienced every year. Minimum summer temperatures usually range from 65° to 75°. From late in May to early in September, only a few cold fronts reach the area.

The precipitation, which averages a little less than 50 inches per year, is generally adequate for most crops. It is fairly evenly distributed throughout the year. Fall is the driest season, and winter is the wettest. In January, the wettest month, precipitation averages slightly more than twice the 2.7 inches normally received in October. Warm frontal systems, or those associated with wintery low pressure systems approaching from the western Gulf of Mexico, are the most reliable sources of moisture. A single storm can bring as much as 2 to 5 inches of precipitation. Snowfall averages about 6 to 7 inches per year and is a negligible source of moisture. Normally, snow melts within a few hours and commonly melts as it falls. Sleet or freezing rain or drizzle is infrequent and is of little consequence except as it disrupts transportation and utility service.

Although convective clouds occur almost daily in summer, rainfall from them is erratic and poorly distributed. Thus they are unsatisfactory sources of rainfall, and local droughts are frequent during the summer. In some years droughts severe enough to injure seedlings and shallow rooted crops occur in spring and early in summer. In most years at least one drought lasting 15 days or more occurs in the period June through September. Such droughts damage but do not kill crops. Severe droughts of 2 to 4 months duration occur no more frequently than 1 year in 10. Such droughts cause severe crop damage or crop failure on such soils as Beulah and Crevasse soils.

During the hottest part of the summer, evaporation of moisture from the soil can average about a third of an inch per day. Thus, extended periods of high temperatures and maximum sunshine result in a large depletion of soil moisture. A 1-inch summer rain can be dissipated in 2 or 3 days.

In spring, wetness is common. In low lying areas crop planting sometimes is delayed from one to several weeks in a wet season. Occasionally, late frost damages early crops and replanting is necessary. The normally dry weather late in summer and in fall is favorable for harvesting, but not for fall seeding, nor for the growth of pasture plants. Rarely do frosts come early enough in fall to damage the quality or reduce the yield of crops.

The growing season is long; on the average it lasts for about 230 days. Sunshine, on the average, is 70 percent of the total amount possible. The average date of the last freezing temperature (32°F.) in spring is March 21, and the first in fall is November 6. The latest that a temperature of 32° has been recorded is April 25, and the earliest is October 2. The average date of the last 28° reading in spring is March 10, and that of the first in fall is November 14. The latest that a temperature of 28° has been recorded is March 30 and the earliest is October 22. There is only a 25 percent chance of temperatures of 32° occurring between the end of March and the first week of November.

The prevailing wind direction is from the south at an average speed of 9 miles per hour. Thunderstorms are common, particularly in summer. Severe thunderstorms and tornados are far less common. Thunderstorms with damaging winds and hail may occur three to five times in a 10-year period. Tornado frequency is only one to possible two occurrences in the same length of time. This is far below the frequency in the tornado-alley areas to the west.

[2] ROBERT O. REINHOLD, climatologist for Arkansas, National Weather Service, U.S. Department of Commerce, prepared this section.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are in Crittenden County, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. As they traveled over the county, they observed the steepness, length, and shape of slopes; the size and speed of streams; the kinds of native plants or crops; and

TABLE 3.—*Temperature and precipitation*

[All data from Memphis, Tenn.]

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average total	One year in 10 will have—	
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—
	°F.	°F.	°F.	°F.	In.	In.	In.
January	50. 6	32. 4	74	9	6. 07	1. 28	11. 87
February	53. 9	34. 3	75	14	4. 69	1. 68	9. 21
March	61. 4	40. 7	82	20	5. 07	1. 98	7. 05
April	72. 1	50. 7	87	32	4. 63	2. 05	7. 41
May	80. 1	60. 4	94	42	4. 23	1. 74	7. 42
June	88. 3	68. 6	97	53	3. 68	. 76	6. 16
July	91. 1	71. 5	101	59	3. 54	. 73	6. 14
August	90. 7	70. 3	100	57	2. 97	. 60	5. 17
September	85. 6	62. 1	95	46	2. 82	. 57	6. 04
October	75. 7	50. 5	90	33	2. 72	. 54	5. 62
November	61. 5	38. 7	81	21	4. 38	1. 17	8. 56
December	52. 5	32. 5	74	12	4. 93	1. 35	8. 56
Year	72. 0	51. 5	----------	----------	49. 73	----------	----------

many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* and the *soil phase* are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Dubbs and Dundee, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface layer, in slope, or in some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Bowdre silty clay, 0 to 1 percent slopes, is one of several phases within the Bowdre series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series. Only one such kind of mapping unit is shown on the soil map of the county: an undifferentiated group.

An undifferentiated group is made up of two or more soil series or phases that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils, or of two or more. The name of an undifferentiated group consists of the name(s) of the dominant soil or soils. Beulah soils is an example.

In most areas surveyed there are places where the soil material is so altered by man's activity that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Borrow pits is a land type in Crittenden County.

While a soil survey is in progress, soil scientists take soil samples needed for laboratory measurements. Laboratory data from the same kinds of soil in other places are also assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil. Yields under defined management are estimated for all the soils.

The soil scientists set up trial groups of soils on the basis of yield and practice tables and other data they have collected. They test these groups by further study

and by consultation with farmers, agronomists, engineers, and others. Then they adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

A comparison of the detailed soil map of this county with those of adjoining counties, Cross County, Mississippi County, and St. Francis County, will show two areas where soil boundaries that overlap county lines between Crittenden County and Mississippi County do not match perfectly. The soil in Mississippi County was of too small an acreage in Crittenden County to justify mapping. The symbols on the detailed soil map of this county do not match those of De Soto and Tunica Counties, Mississippi, because continuing refinement of the soil classification has resulted in some changes in classification by soil series since those surveys were published.

General Soil Map

The general soil map in the back of this publication shows, in color, the soil associations in Crittenden County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, texture, drainage, and other characteristics that affect management.

The soil associations in this county do not precisely join those on the general soil maps of adjacent counties because some soils that are major in one county are minor or nonexistent in the others, and because changes have been made in soil classification since those surveys were published.

The six associations in Crittenden County are described on the pages that follow. Detailed information about individual soils in each association can be obtained by studying the detailed map and by reading the section "Descriptions of the Soils."

1. Alligator-Forestdale-Earle Association

Poorly drained and somewhat poorly drained, level and gently undulating, predominantly clayey soils on slack-water flats and old natural levees

This association is mainly in the northwestern part of the county. It consists of broad slack-water flats broken by gently undulating areas of alternating swales and low ridges that rise 2 to 5 feet above the flats. Generally, Alligator soils are in the lower lying areas, Earle soils are at intermediate elevations, and Forestdale soils are in the highest areas.

This association makes up about 10 percent of the county. It is about 40 percent Alligator soils, 40 percent Forestdale soils, and 15 percent Earle soils. The rest is mainly Sharkey soils and areas of water.

Alligator soils are poorly drained. The surface layer is dark grayish-brown silty clay. The upper part of the subsoil is mottled grayish-brown clay, the middle part is mottled gray clay, and the lower part is mottled gray silty clay. Below this is mottled gray silt loam.

Forestdale soils are poorly drained. The surface layer is dark grayish-brown and dark-gray silty clay loam. The upper part of the subsoil is mottled gray silty clay, the middle part is mottled gray silty clay loam, and the lower part is mottled gray silt loam. Below this is mottled gray fine sandy loam and silt loam.

Earle soils are somewhat poorly drained. The surface layer is very dark grayish-brown clay. The upper part of the subsoil is mottled gray clay, and the lower part is mottled gray loamy sand. Below this is mottled brown loamy sand.

Soils in this association are productive and are suited to farming. Less than 10 percent of the acreage is woodland, mainly hardwood trees. Most of the association is cultivated. Surface drainage is needed. The main crops are soybeans and cotton. Winter small grain, rice, and pasture plants are also grown. Farms range from 200 to 600 acres and are highly mechanized. About half the farms are operated by owners and the rest by renters.

These soils shrink and crack when dry and expand when wet. Because they are wet and unstable and have low bearing strength, they are poorly suited as sites for residences, other buildings, and highways. Limitations are severe for septic tank filter fields because the percolation rate is slow and the water table is seasonally high.

2. Sharkey-Tunica Association

Poorly drained, level and gently undulating, clayey soils on slack-water flats

This association is mainly in the north-central and southern parts of the county. It consists of broad slack-water flats broken by gently undulating areas of alternating swales and low ridges that rise 2 to 5 feet above the flats. There is no regular soil pattern.

This association makes up about 22 percent of the county. It is about 55 percent Sharkey soils and 35 percent Tunica soils. The rest is mainly Bowdre soils and areas of water.

Sharkey soils are poorly drained. The surface layer is very dark grayish-brown and mottled very dark gray silty clay. The subsoil is mottled dark-gray and gray clay. Below this is mottled gray silty clay loam underlain by mottled gray clay.

Tunica soils are poorly drained. The surface layer is very dark grayish-brown clay. The upper part of the subsoil is mottled dark-gray and gray clay. The lower part is mottled gray silty clay. Below this is mottled brown and dark-brown sandy loam underlain by sand.

Soils in this association are productive and are suited to farming. Except for a few small, scattered patches of hardwood trees, mainly along bayous, most of the association is cultivated. Surface drainage is needed. The main crops are cotton and soybeans, but alfalfa, rice,

winter small grain, and pasture plants are also grown. Farms range from 200 to 800 acres and are highly mechanized. About half the farms are operated by owners and the rest by renters.

These soils shrink and crack when dry and expand when wet. Because they are wet and unstable and have low bearing strength, they are poorly suited as sites for residences, other buildings, and highways. They have severe limitations for septic tank filter fields because of the slow percolation rate and the seasonal high water table.

3. Commerce-Robinsonville Association

Somewhat poorly drained and well-drained, level, loamy soils on young natural levees

This association is in strips that are generally adjacent and parallel to the Mississippi River. It includes the larger areas of young, loamy, natural levees deposited by the river. Most areas are level, but some are gently undulating. Generally Commerce soils are in the lower lying areas, and Robinsonville soils are in the higher areas.

The association makes up about 10 percent of the county. It is about 35 percent Commerce soils, 25 percent Robinsonville soils, and 40 percent Crevasse, Mhoon, Tunica, and Sharkey soils, and levees, Borrow pits, and areas of water.

Commerce soils are somewhat poorly drained. The surface layer is dark grayish-brown silt loam. The subsoil is mottled grayish-brown silt loam. The underlying material is stratified, mottled grayish-brown, light brownish-gray, and gray silt loam and silty clay loam.

Robinsonville soils are well drained. The surface layer is dark grayish-brown very fine sandy loam. Beneath this is brown very fine sandy loam underlain by mottled grayish-brown silt loam.

The soils in this association are productive and, if protected from flooding, are well suited to farming. Except for small, scattered patches of hardwood trees, nearly all of the association is cultivated. Part of the association is between the levee and the Mississippi River and is frequently flooded, generally during the period January through June. The main crops in this part of the association are soybeans and grain sorghum. The main crops grown in areas protected by the levee are cotton and soybeans. Winter small grain and pasture plants are also grown, and truck crops are suited. Most farms range from 100 to 800 acres and are highly mechanized. About half of the farms are operated by owners and the rest by renters.

Most of this association has moderate to severe limitations for nonfarm development. In the areas protected from flooding, Robinsonville soils are good sites for residences, other buildings, and highways and are well suited to septic tank filter fields.

4. Sharkey Association

Poorly drained, level and gently undulating, predominantly flooded, clayey soils on slack-water flats

This association consists of slack-water flats broken by low, gently undulating areas that rise 2 to 5 feet above the flats. It is in the eastern half of the county, in scattered areas along the Mississippi River and from Wapanocca Lake southward to the vicinity of Horseshoe Lake. Most of Wapanocca National Wildlife Refuge lies within this association.

This association makes up about 15 percent of the county. It is about 80 percent Sharkey soils. The rest is mainly Bowdre, Crevasse, and Tunica soils and Borrow pits, levees, and areas of water.

Sharkey soils are poorly drained. The surface layer is very dark grayish-brown and mottled very dark gray silty clay. The subsoil is mottled dark-gray and gray clay. Below this is mottled gray silty clay loam underlain by mottled gray clay.

Soils in this association are productive and are suited to farming. About 80 percent of this association is cultivated. The rest is chiefly scattered patches of hardwood trees. Part of this association is between the levee and the Mississippi River and is subject to frequent flooding during the period January through June. Surface drainage is generally not practical. Drainage, however, is needed in the part of the association protected by the levee. The main crops grown between the levee and the Mississippi River are soybeans and grain sorghum. The main crops grown in areas protected by the levee are cotton and soybeans. Alfalfa, rice, winter small grain, and pasture plants are also grown. Farms range from 100 to 1,000 acres and are highly mechanized. About half of the farms are operated by owners and the rest by renters.

These soils shrink and crack when dry and expand when wet. Because they are wet and unstable and have low bearing strength, they are poorly suited as sites for residences, other buildings, and highways. They have severe limitations for septic tank filter fields because of the slow percolation rate and the seasonal high water table. Limitations for nonfarm use are even more severe in the areas subject to flooding.

5. Dundee-Dubbs Association

Somewhat poorly drained and well-drained, level and gently undulating, loamy soils on old natural levees

This association consists mainly of level and gently undulating, loamy natural levees. The undulating areas are alternating swales and low ridges that rise 2 to 5 feet above the swales. Generally, Dundee soils are in the lower lying areas and Dubbs soils are in the higher lying areas. The largest area of this association extends across the middle of the county.

This association makes up about 26 percent of the county. It is about 30 percent Dundee soils, 20 percent Dubbs soils, and 50 percent mainly Alligator, Beulah, Crevasse, Forestdale, Jeanerette, and Sharkey soils.

Dundee soils are somewhat poorly drained. The surface layer is dark grayish-brown silt loam. The subsoil is mottled grayish-brown and light brownish-gray silt loam. Below this is mottled gray silt loam underlain by mottled gray silty clay.

Dubbs soils are well drained. The surface layer is dark grayish-brown silt loam. The upper part of the subsoil is yellowish-brown silty clay loam. The lower part is mottled yellowish-brown silt loam. Below this is stratified, mottled yellowish-brown, brown, gray, and light

brownish-gray silt loam, loamy fine sand, and fine sandy loam.

This association is one of the major cotton farming areas. About 96 percent of it is cultivated. The rest consists of patches of hardwood trees along the bayous. Surface drainage is needed on Dundee soils. The main crops are cotton and soybeans, but grain sorghum, winter small grain, and pasture plants are also grown. Truck crops are suited. Farms range from 80 to 4,000 acres. About 60 percent of the farms are operated by owners and the rest by renters.

Most of this association has moderate to severe limitations as sites for residences, other buildings, and highways and severe limitations for septic tank filter fields.

6. Alligator-Sharkey Association

Poorly drained, level and gently undulating, clayey soils on slack-water flats

This association extends across the central part of the county, just south of the largest area of association 5. It consists of broad slack-water flats broken by gently undulating areas of alternating swales and low ridges that rise 2 to 5 feet above the flats. The soils are intermingled, but generally Sharkey soils are in the lower lying areas.

This association makes up about 17 percent of the county. It is about 40 percent Alligator soils and 40 percent Sharkey soils. The rest is mainly Bowdre, Earle, Forestdale, and Tunica soils.

Alligator soils are poorly drained. The surface layer is dark grayish-brown silty clay. The upper part of the subsoil is mottled grayish-brown clay, the middle part is mottled gray clay, and the lower part is mottled gray silty clay. Below this is mottled gray silt loam.

Sharkey soils are poorly drained. The surface layer is very dark grayish-brown and mottled very dark gray silty clay. The subsoil is mottled dark-gray and gray clay. Below this is mottled gray silty clay loam underlain by mottled gray clay.

Soils in this association are productive and are suited to farming. About 90 percent of the association is cultivated. The rest is chiefly small, scattered areas of hardwood trees along bayous. Surface drainage is needed. The main crops are soybeans and cotton. Grain sorghum, rice, winter small grain, and pasture plants are also grown. Alfalfa is grown on Sharkey soils. Most farms range from 100 to 1,000 acres and are highly mechanized. About half the farms are operated by owners and the rest by renters.

These soils shrink and crack when dry and expand when wet. Because they are wet and unstable and have low bearing strength, they are poorly suited as sites for residences (fig. 2), other buildings, and highways. They have severe limitations for septic tank filter fields because of the slow percolation rate and the seasonal high water table.

***Figure 2.*—Urban expansion onto Sharkey silty clay in association 6.**

Descriptions of the Soils

In this section, the soils of Crittenden County are described in detail. The procedure is to describe first the soil series and then the mapping units in the series. Thus, to get full information on any mapping unit, it is necessary to read both the description of that unit and the description of the soil series to which the unit belongs.

The description of the soil series includes a description of a profile that is considered representative of all the soils of the series. If the profile of a given mapping unit differs from this typical profile, the differences are stated in the description of the mapping unit, unless they are apparent from the name of the mapping unit. Many of the terms used in describing soil series and mapping units are defined in the "Glossary."

The approximate acreage and proportionate extent of the soils are shown in table 4. The "Guide to Mapping Units," at the back of this soil survey, lists all the mapping units in the county and the page where each unit is described. It also shows the capability unit designation for each mapping unit.

Alligator Series

The Alligator series consists of poorly drained, level and gently undulating soils in old slack-water areas on bottom land along the Mississippi River. These soils formed in thick beds of clayey sediments.

TABLE 4.—*Approximate acreage and proportionate extent of the soils*

Soil	Area	Extent
	Acres	*Percent*
Alligator silty clay, 0 to 1 percent slopes	37, 249	9. 0
Alligator silty clay, gently undulating	11, 737	2. 9
Beulah soils	4, 570	1. 1
Borrow pits	5, 016	1. 2
Bowdre silty clay, 0 to 1 percent slopes	3, 545	. 9
Bowdre silty clay, gently undulating	6, 828	1. 6
Bowdre silty clay, frequently flooded	3, 557	. 9
Commerce silt loam	11, 681	2. 8
Commerce silt loam, frequently flooded	3, 480	. 8
Crevasse fine sand	2, 947	. 7
Crevasse fine sand, frequently flooded	4, 633	1. 1
Dubbs silt loam, 0 to 1 percent slopes	5, 291	1. 3
Dubbs silt loam, gently undulating	17, 173	4. 1
Dundee silt loam, 0 to 1 percent slopes	22, 012	5. 3
Dundee silt loam, gently undulating	10, 806	2. 6
Earle clay	6, 721	1. 6
Forestdale silty clay loam	23, 348	5. 6
Jeanerette silt loam	2, 312	. 6
Mhoon silt loam	1, 304	. 3
Robinsonville very fine sandy loam	9, 314	2. 2
Robinsonville very fine sandy loam, frequently flooded	2, 854	. 7
Sharkey silty clay, 0 to 1 percent slopes	131, 005	31. 6
Sharkey silty clay, gently undulating	15, 669	3. 8
Sharkey silty clay, frequently flooded	6, 215	1. 5
Tunica clay, 0 to 1 percent slopes	11, 277	2. 7
Tunica clay, gently undulating	22, 281	5. 4
Tunica clay, frequently flooded	7, 858	1. 9
Levees	2, 710	. 7
Water	21, 327	5. 1
Total	414, 720	100. 0

In a representative profile, the surface layer is dark grayish-brown silty clay about 4 inches thick. The upper 7 inches of the subsoil is grayish-brown clay, the middle part is gray clay that extends to a depth of about 49 inches, and the lower part is gray silty clay that extends to a depth of about 69 inches. The subsoil is mottled throughout with shades of yellowish brown. The underlying material is mottled gray and yellowish-brown silt loam.

Alligator soils are moderate to high in natural fertility. Content of organic matter is medium to low. Permeability is very slow, and the available water capacity is high. The response to fertilization is good. Tilth is difficult to maintain because of the high content of clay, and a seedbed is difficult to prepare. These soils shrink and crack as they dry and expand when wet. If they are plowed when wet, hard, persistent clods form.

If drained and well managed, these soils are suited to most crops grown in the county. Most of the acreage is cultivated.

Representative profile of Alligator silty clay, 0 to 1 percent slopes, in a moist, cultivated area in the SE¼ NE¼NE¼ sec. 3, T. 9 N., R. 6 E.:

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) silty clay; weak, medium, granular structure; firm, plastic; many fine roots; few, fine, dark concretions; strongly acid; abrupt, smooth boundary.

B21—4 to 11 inches, grayish-brown (10YR 5/2) clay; few, fine, distinct, yellowish-brown mottles; some mottles follow along root channels; moderate, medium, subangular blocky structure; firm, plastic; common fine roots; few fine pores; material from Ap horizon fills some cracks; very strongly acid; clear, wavy boundary.

B22g—11 to 23 inches, gray (10YR 5/1) clay; common, medium and fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, plastic; few fine roots; few fine pores; few slickensides that do not intersect; very strongly acid; gradual, wavy boundary.

B23g—23 to 35 inches, gray (10YR 6/1) clay; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, plastic; few fine roots; few dark concretions; few slickensides that do not intersect; very strongly acid; gradual, smooth boundary.

B24g—35 to 41 inches, gray (10YR 6/1) clay; common, fine, distinct, yellowish-brown (10YR 5/4) mottles; moderate, medium, subangular blocky structure; firm, plastic; few fine roots; few, fine, dark concretions; few slickensides that do not intersect; very strongly acid; gradual, smooth boundary.

B25g—41 to 49 inches, gray (10YR 6/1) clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm, plastic; common, fine, dark concretions; few slickensides that do not intersect; strongly acid; gradual, smooth boundary.

B26g—49 to 69 inches, gray (10YR 6/1) silty clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm, plastic; common, medium, dark concretions; few slickensides that do not intersect; medium acid; gradual, smooth boundary.

IICg—69 to 81 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; firm; common, fine, dark concretions; neutral.

The Ap horizon is very dark grayish brown, dark grayish brown, or very dark gray. The B horizon is dark gray or gray. The B25g horizon ranges from clay to silty clay loam. The IICg horizon ranges from silt loam to loamy sand. Reaction

is strongly acid or very strongly acid in the A horizon and in the B horizon to a depth of about 4 feet. The lower part of the B horizon and the C horizon are strongly acid to neutral.

Alligator soils are associated chiefly with Earle, Forestdale, and Sharkey soils. They formed in thicker beds of clay than Earle and Forestdale soils and lack the translocated clay in the B horizon characteristic of Forestdale soils. Alligator soils closely resemble Sharkey soils, but are more acid to a depth of 40 inches or more.

Alligator silty clay, 0 to 1 percent slopes (AlA).—This level soil is the largest acreage of Alligator soils in the county. It commonly occurs as large areas on broad flats. Individual areas range up to several thousand acres in size. This soil has the profile described as representative for the series. Included in mapping are small areas of gently undulating soils and spots of Earle, Forestdale, and Sharkey soils.

This soil is suited to farming, but excess water is a severe hazard. Fieldwork is often delayed several days after a rain unless surface drains have been installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and cotton. Other suitable crops are grain sorghum, rice, and winter small grain. Okra is a suitable truck crop. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Alligator silty clay, gently undulating (AlU).—This soil is in areas of alternating, long narrow swales and low ridges that rise 2 to 5 feet above the swales. Slopes are less than 3 percent. Areas are generally along the margins of broad flats. Most areas range from 40 acres to several hundred acres in size. Included in mapping are small, level areas and spots of Earle, Forestdale, and Sharkey soils.

This soil is suited to farming, but excess water is a severe hazard. Water accumulates in the swales, and fieldwork is delayed several days after a rain unless surface drains have been installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and cotton. Grain sorghum is a suitable crop, and winter small grain can be grown where surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Beulah Series

The Beulah series consists of somewhat excessively drained, level and gently undulating soils on the higher parts of natural levees bordering bayous and abandoned stream channels. These soils formed in stratified sandy and loamy sediments.

In a representative profile, the surface layer is dark-brown fine sand about 7 inches thick. The subsoil is dark yellowish-brown very fine sandy loam about 18 inches thick. Below this is yellowish-brown and brown loamy fine sand and fine sand.

Beulah soils are moderate in natural fertility. Content of organic matter is moderate to low. Permeability is moderately rapid, and the available water capacity is moderate to low. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and movement of water through the soil. These soils warm early in spring and can be planted early.

Beulah soils are suited to the crops commonly grown in the county. Nearly all the acreage is cultivated.

Representative profile of Beulah fine sand in a moist, cultivated area of Beulah soils in the SW¼SW¼NE¼ sec. 21, T. 7 N., R. 8 E.:

Ap—0 to 7 inches, dark-brown (10YR 4/3) fine sand; weak, fine, granular structure; very friable to loose; many fine roots; medium acid; abrupt, smooth boundary.

B—7 to 25 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam; weak, medium, subangular blocky structure; friable; common fine roots; strongly acid; clear, smooth boundary.

IIC1—25 to 31 inches, yellowish-brown (10YR 5/4) loamy fine sand; massive; loose; few fine roots; medium acid; diffuse boundary.

IIIC2—31 to 43 inches, brown (10YR 5/3) fine sand; single grain; loose; medium acid; diffuse boundary.

IIIC3 —43 to 70 inches, brown (10YR 5/3) loamy fine sand; massive; loose; medium acid.

The Ap horizon is yellowish-brown to dark grayish-brown sandy loam, fine sandy loam, loamy fine sand, or fine sand. The B horizon is dark yellowish-brown to brown very fine sandy loam to sandy loam. The C horizon is yellowish-brown to pale-brown loamy fine sand or fine sand. Reaction is slightly acid to strongly acid in the A horizon and medium acid to very strongly acid in the B and C horizons.

Beulah soils are chiefly associated with Crevasse and Dubbs soils. They have a B horizon, which the Crevasse soils lack, and the B horizon is finer textured than the C horizon of Crevasse soils. Beulah soils are coarser textured in the B horizon, lack mottling, and are more rapidly drained than Dubbs soils.

Beulah soils (Be).—This undifferentiated group is made up of Beulah soils and of well-drained soils that have a subsoil high in silt content and are higher in natural fertility and somewhat higher in available water capacity than Beulah soils. These level to gently undulating soils commonly occur on the higher parts of natural levees. Slopes are 0 to 3 percent. The undulating areas are alternating, long narrow swales and low ridges that rise 2 to 5 feet above the swales. Individual areas are generally 10 to 80 acres in size. Included in mapping are spots of Crevasse and Dubbs soils.

These soils are well suited to farming. Droughtiness is a moderate limitation because of the limited available water capacity. Soil blowing is a moderate hazard in spring if the soil is bare. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crop is cotton. Other suitable crops are grain sorghum, peanuts, soybeans, and winter small grain. Truck crops, such as okra, green beans, potatoes, sweet corn, tomatoes, and melons, are suited. Suitable pasture plants are bermudagrass, annual lespedeza, and white clover. Capability unit IIs–1.

Borrow Pits

The largest area of Borrow pits (Bp) is mainly along the riverside of the Mississippi River levee, in a narrow strip parallel to the levee. Other areas are near interstate highways. These are pits where soil and underlying material were excavated for levee construction or road fill. Some

hold water the year round and create good habitat for wetland wildlife and fish. Others are dry most of the year. Most of these support willow and cottonwood trees. Some are grazed by cattle. A few are used to grow catch crops of soybeans or grain sorghum. Not placed in a capability unit.

Bowdre Series

The Bowdre series consists of somewhat poorly drained, level and gently undulating soils at higher elevations in slack-water areas. These soils formed in thin beds of clayey sediments over coarser textured sediments.

In a representative profile, the surface layer is very dark grayish-brown silty clay about 5 inches thick. The subsoil, about 12 inches thick, is very dark grayish-brown silty clay mottled with dark yellowish brown. The underlying material is about 43 inches of mottled brown, yellowish-brown, and gray silt loam. Below this is mottled dark-gray clay.

Bowdre soils are moderate to high in natural fertility. Content of organic matter is moderate. Permeability is slow, and the available water capacity is high. The response to fertilization is good. Tilth is difficult to maintain because of the high content of clay in the surface layer, and a seedbed is difficult to prepare. These soils shrink and crack as they dry and expand when wet. If they are plowed when wet, hard, persistent clods form.

These soils are suited to most crops grown in the county. Nearly all the acreage is cultivated.

Representative profile of Bowdre silty clay, frequently flooded, in a moist, cultivated area in the SE¼SW¼ SE¼ sec. 4, T. 8 N., R. 9 E.:

Ap—0 to 5 inches, very dark grayish-brown (10YR 3/2) silty clay; weak, fine, granular structure; firm, plastic; many fine roots; neutral; abrupt, smooth boundary.

B—5 to 17 inches, very dark grayish-brown (10YR 3/2) silty clay; common, fine, faint, dark yellowish-brown mottles; moderate, medium, subangular blocky structure; firm, plastic; few fine roots; few fine pores; neutral; clear, smooth boundary.

IIC1—17 to 42 inches, brown (10YR 5/3) silt loam; common, medium, faint, gray (10YR 5/1) mottles; massive; friable; few fine roots; neutral; clear, smooth boundary.

IIC2—42 to 60 inches, mottled yellowish-brown (10YR 5/4) and gray (10YR 6/1) silt loam; massive; friable; neutral; gradual, smooth boundary.

IIIC3g—60 to 76 inches, dark-gray (10YR 4/1) clay; common, fine, distinct, dark yellowish-brown mottles; massive; firm, plastic; mildly alkaline.

The B horizon is very dark grayish brown or dark brown. Depth to the IIC horizon ranges from 14 to 20 inches. The IIC horizon is silt loam, very fine sandy loam, or loam. Depth to the IIIC horizon ranges from 48 inches to more than 72 inches. Reaction is slightly acid to mildly alkaline throughout the profile.

Bowdre soils are associated mainly with Tunica and Sharkey soils. They formed in thinner beds of clayey sediments and are better drained internally than those soils.

Bowdre silty clay, 0 to 1 percent slopes (BrA).—This level soil is at the higher elevations in slack-water areas. Individual areas range from about 15 to 200 acres in size. Included in mapping were spots of Tunica and Sharkey soils.

This soil is suited to farming, but excess water is a moderate hazard. Fieldwork is often delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are alfalfa, grain sorghum, and winter small grain. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIw–1.

Bowdre silty clay, gently undulating (BrU).—This soil is generally along the margin of broad flats, in areas of alternating long, narrow swales and low ridges that rise 2 to 5 feet above the swales. Slopes are less than 3 percent. Most areas are 10 to 200 acres in size. The profile of this soil is similar to one described as representative for the series, but the clayey layer is slightly thinner on the ridges and slightly thicker in the swales. Included in mapping are small areas of level soils and spots of Tunica and Sharkey soils.

This soil is suited to farming, but excess water is a moderate hazard. Water accumulates in the swales of undulations, and fieldwork is delayed several days after a rain unless surface drains are installed. Land grading and smoothing can be done, but careful planning is needed for satisfactory results. Deep cuts in the ridges expose the more permeable underlying material and material from the clayey upper layers fills the depressions, all of which results in alternating narrow strips of loamy and clayey textures across the graded fields. Thus, a field may be more difficult to manage after grading than before. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are alfalfa, grain sorghum, and winter small grain. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIw–1.

Bowdre silty clay, frequently flooded (Bw).—This level and gently undulating soil is at the higher elevations in slack-water areas, between the levee and the Mississippi River. Areas range from about 15 to 100 acres in size. This soil has the profile described as representative for the series. It is flooded for periods of 8 to 50 days, generally between January and June. Floods occur on an average of about once every 2 years. Included in mapping are spots of Tunica and Sharkey soils.

This soil is suited to farming, but flooding is a very severe hazard. Only warm season annual crops that require a short growing season can be grown safely. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and grain sorghum. Bermudagrass is a well suited pasture plant. Capability unit IVw–1.

Commerce Series

The Commerce series consists of somewhat poorly drained, level soils on the lower part of young, natural levees. These soils formed in stratified beds of loamy sediments.

In a representative profile, the surface layer is dark grayish-brown silt loam about 6 inches thick. The subsoil

is about 14 inches thick and is grayish-brown silt loam mottled predominantly with yellowish brown. The underlying material is grayish-brown, light brownish-gray, and gray, stratified silty clay loam and silt loam that is mottled with yellowish brown.

Commerce soils are high in natural fertility. Content of organic matter is moderate to low. Permeability is moderately slow, and the available water capacity is high. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and movement of water through the soil.

These soils are suited to most crops commonly grown in the county. Nearly all the acreage is cultivated.

Representative profile of Commerce silt loam in a moist, cultivated area in the SW¼NW¼SW¼ sec. 7, T. 3 N., R. 7 E.:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; many fine roots; neutral; abrupt, smooth boundary.

B1—6 to 14 inches, dark grayish-brown (10YR 4/2) silt loam; few, medium, faint, yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2) mottles; weak, coarse, subangular blocky structure; very friable; common fine roots; neutral; clear, smooth boundary.

B2—14 to 20 inches, grayish-brown (10YR 5/2) silt loam; common, medium and fine, faint, yellowish-brown (10YR 5/4) mottles; weak, coarse, subangular blocky structure; friable, slightly plastic; common fine roots; common fine pores; some faces of peds and root channels coated with dark grayish-brown silt loam; few worm casts; few clayey lumps about 1 inch in diameter; mildly alkaline; clear, wavy boundary.

C1—20 to 23 inches, grayish-brown (10YR 5/2) silt loam; massive; very friable; common, coarse, faint, yellowish-brown (10YR 5/4) mottles, mainly along root channels; few medium roots; few fine pores; some root channels filled with dark grayish-brown silt loam; few worm casts; neutral; clear, smooth boundary.

C2—23 to 30 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; friable; few medium and fine roots; few fine pores; root channels coated with dark grayish-brown silt loam; few worm casts; few clayey lumps about 1 inch in diameter; mildly alkaline; clear, smooth boundary.

C3g—30 to 48 inches, light brownish-gray (10YR 6/2) silty clay loam; common medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; firm, slightly plastic; few medium roots; some root channels coated with dark grayish-brown silt loam; few worm casts; mildly alkaline; clear, smooth boundary.

C4g—48 to 57 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; friable; few, fine, black concretions; mildly alkaline; clear, wavy boundary.

C5g—57 to 80 inches, gray (10YR 6/1) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; firm, slightly plastic; few, fine, black concretions; mildly alkaline.

The Ap horizon is brown to dark grayish brown. The B horizon ranges from 14 to 35 inches in thickness. It is grayish-brown or dark grayish-brown silt loam or silty clay loam. The C horizon is grayish-brown, light brownish-gray, or gray loam to silty clay loam. Reaction is slightly acid to moderately alkaline throughout the profile.

Commerce soils are associated with Mhoon and Robinsonville soils. They are better drained and not so gray as Mhoon soils and are more poorly drained, grayer, and less permeable than Robinsonville soils.

Commerce silt loam (Cm).—This level soil is on the lower part of natural levees. Areas range from about 20 to 400 acres in size. This soil has the profile described as representative for the series. Included in mapping are spots of Mhoon and Robinsonville soils and small areas of gently undulating soils.

This soil is well suited to farming. Occasionally, surface water delays planting early in spring. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and cotton (fig. 3). Other suitable crops are corn, grain sorghum, alfalfa, peanuts, and winter small grain. Okra, green beans, and tomatoes are truck crops that can be grown. Suitable pasture plants are bermudagrass, tall fescue, and white clover (fig. 4). Capability unit I–1.

Commerce silt loam, frequently flooded (Co).—This level soil is on the lower part of natural levees, between the levee and the Mississippi River. It is flooded for periods of 8 to 50 days on an average of about once every 2 years, generally between January and June. Areas range from about 15 to 100 acres in size. Included in mapping are small spots of Robinsonville soils.

This soil is suited to farming, but flooding is a very severe hazard. Only warm-season annual crops that require a short growing season can be grown safely. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and grain sorghum. Bermudagrass is a well suited pasture plant. Capability unit IVw–2.

Crevasse Series

The Crevasse series consists of excessively drained, level and gently undulating soils at the highest elevations on natural levees. These soils formed in sandy sediments.

In a representative profile, the surface layer is dark grayish-brown fine sand about 5 inches thick. Below this is stratified, brown, grayish-brown, and pale-brown sand and fine sand.

Crevasse soils are low in natural fertility and in content of organic matter. Permeability is rapid. The available water capacity is low and the soil is droughty. The response to fertilization is fair. Tilth is easy to maintain. These soils warm up early in spring and can be planted early, but they are poorly suited to summer crops.

These soils are not well suited to general farming. Only about half the acreage is cultivated.

Representative profile of Crevasse fine sand in a moist, cultivated area in the NE¼NE¼NE¼ sec. 13, T. 8 N., R. 8 E.:

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) fine sand; weak, fine, granular structure; loose; many fine roots; strongly acid; abrupt, smooth boundary.

C1—5 to 30 inches, brown (10YR 5/3) sand; single grain; loose; few fine roots; medium acid; clear, smooth boundary.

C2—30 to 48 inches, grayish-brown (10YR 5/2) fine sand; single grain; loose; medium acid; clear, smooth boundary.

C3—48 to 70 inches, pale-brown (10YR 6/3) sand; single grain; loose; slightly acid.

The Ap horizon is dark grayish brown or dark brown. The C horizon is brown, pale-brown, or grayish-brown fine sand.

Figure 3.—**Mature cotton on Commerce silt loam. A skip-row planting system was used in this field.**

loamy fine sand, or sand. Reaction is strongly acid to neutral throughout the profile.

Crevasse soils are chiefly associated with Beulah and Robinsonville soils. They are coarser textured, are more rapidly drained, and have lower available water capacity than either of the associated soils.

Crevasse fine sand (Cr).—This level and gently undulating soil is at the higher elevations bordering the stream channels. Most areas are long, narrow strips of alternating ridges and swales. The ridges rise 2 to 5 feet above the swales. Slopes are 0 to 3 percent. Areas range from about 10 to 200 acres in size. The profile of this soil is the one described as representative for the series. Included in mapping are narrow escarpments and spots of Beulah and Robinsonville soils.

This soil is only fairly well suited to farming, even if well managed. Droughtiness is a very severe limitation. The crops that are well suited are those that grow during winter and spring when the soil has the highest water content. Soil blowing is a severe hazard in spring if the soil is bare. Under good management, this soil can be used year after year for crops that leave a large amount of residue.

The main crop is winter small grain. Bermudagrass is a well suited pasture plant. Several large areas have been surface mined for road fill. Capability unit IVs–1.

Crevasse fine sand, frequently flooded (Cs).—This gently undulating soil is between the levee and the Mississippi River, at the higher elevations bordering the river. Areas are alternating long, narrow depressions and low ridges that rise 3 to 8 feet above the depressions. They range from about 10 to 100 acres in size. Slopes are 0 to 3 percent. The profile of this soil is similar to the one described as representative for the series, but the texture of the underlying material is generally coarser and the available water capacity is somewhat lower. This soil is flooded for periods of 8 to 50 days

Figure 4.—**Beef cattle grazing bermudagrass pasture on Commerce silt loam.**

on an average of about once every 2 years, generally between January and June. Included in mapping are spots of Robinsonville soils.

This soil is poorly suited to farming. Droughtiness is a very severe limitation for warm-season crops. Soil blowing is a severe hazard in spring if the soil is bare. Only crops that leave a large amount of residue should be planted. Although cool-season crops are likely to be lost to floods, a crop that is well suited to this soil is winter small grain. Bermudagrass is a suitable pasture plant. Some areas have been surface mined for road fill. Capability unit IVw–3.

Dubbs Series

The Dubbs series consists of well-drained, level and gently undulating soils on older natural levees along bayous and abandoned river channels. These soils formed in stratified beds of loamy sediments.

In a representative profile, the surface layer is dark grayish-brown silt loam about 4 inches thick. The upper 14 inches of the subsoil is yellowish-brown silty clay loam. The lower part, which extends to a depth of about 30 inches, is yellowish-brown silt loam mottled with pale brown. The underlying material is stratified, mottled yellowish-brown, brown, gray, and light brownish-gray silt loam, loamy fine sand, and fine sandy loam.

Dubbs soils are moderate to high in natural fertility. Content of organic matter is moderate to low. Permeability is moderate, and the available water capacity is high. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and movement of water through the soil.

These soils are suited to most crops commonly grown in the county. Nearly all the acreage is cultivated.

Representative profile of Dubbs silt loam, gently undulating, in a moist, cultivated area in the SE¼NW¼ SW¼ sec. 26, T. 7 N., R. 8 E.:

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium, granular structure; friable; many fine roots; medium acid; abrupt, smooth boundary.

B21t—4 to 18 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, medium, subangular blocky structure; firm; common, thin, patchy clay films on faces of peds; many fine roots; very strongly acid; clear, smooth boundary.

B22t—18 to 30 inches, yellowish-brown (10YR 5/6) silt loam; few, fine, faint, pale-brown mottles; moderate, medium, subangular blocky structure; firm; common, thin, patchy clay films on faces of peds; few fine roots; very strongly acid; clear, smooth boundary.

C1—30 to 45 inches, yellowish-brown (10YR 5/4) silt loam; few, fine, faint, light brownish-gray mottles; massive; friable; very strongly acid; gradual, smooth boundary.

IIC2g—45 to 51 inches, light brownish-gray (10YR 6/2) loamy fine sand; few, medium, distinct, yellowish-brown (10YR 5/4) mottles; massive; loose; medium acid; abrupt, smooth boundary.

IIC3g—51 to 69 inches, mottled brown (10YR 5/3) and light brownish-gray (10YR 6/2) fine sandy loam; massive; friable; few fine pores; medium acid; abrupt, smooth boundary.

IIC4g—69 to 82 inches, gray (10YR 6/1) loamy fine sand; massive; loose; medium acid.

The Ap horizon is dark grayish brown or grayish brown. The B horizon is yellowish-brown or dark yellowish-brown silt loam or silty clay loam. The B22t horizon has few to common pale-brown or light brownish-gray mottles. The C horizon is at a depth of 30 to 48 inches, and it ranges from silt loam to very fine sandy loam. The IIC horizon is fine sandy loam or loamy fine sand. Reaction is strongly acid to slightly acid in the A horizon and medium acid to very strongly acid in the B and C horizons.

Dubbs soils are associated mainly with Beulah and Dundee soils. They are finer textured and have slower internal drainage than Beulah soils and are browner and better drained than Dundee soils.

Dubbs silt loam, 0 to 1 percent slopes (DsA).—This level soil is on the tops and sides of natural levees. Areas range from 10 to 150 acres in size. Included in mapping are spots of Beulah and Dundee soils.

This soil is well suited to farming. It warms early in spring and can be planted early. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are corn, grain sorghum, peanuts, winter small grain, and truck crops, such as okra, green beans, potatoes, sweet corn, tomatoes, strawberries, and melons. Suitable pasture plants are bermudagrass and white clover. Capability unit I–1.

Dubbs silt loam, gently undulating (DsU).—This soil is generally on the tops and sides of natural levees, in areas of alternating long, narrow swales and low ridges that rise 2 to 5 feet above the swales. Slopes are predominantly less than 2 percent. Areas range from 10 to 150 acres in size. This soil has the profile described as representative for the series. Included in mapping are a few narrow escarpments and spots of Beulah and Dundee soils.

This soil is well suited to farming. It warms up early in spring and can be planted early. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are corn, grain sorghum, peanuts, winter small grain, and truck crops, such as okra, green beans, potatoes, sweet corn, tomatoes, strawberries, and melons. Suitable plants are bermudagrass and white clover. Capability unit I–1.

Dundee Series

The Dundee series consists of somewhat poorly drained soils on the lower parts of the older natural levees along bayous and abandoned river channels. These soils formed in stratified beds of loamy sediments.

In a representative profile, the surface layer is dark grayish-brown silt loam about 8 inches thick. The subsoil extends to a depth of about 36 inches. It is grayish-brown and light brownish-gray silt loam mottled with yellowish brown. Below this is about 16 inches of mottled gray silt loam that is underlain by mottled gray silty clay.

Dundee soils are high in natural fertility. Content of organic matter is moderate to low. Permeability is moderately slow, and the available water capacity is high. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and movement of water through the soil.

These soils are suited to most crops commonly grown in the county. Nearly all the acreage is cultivated.

Representative profile of Dundee silt loam, 0 to 1 percent slopes, in a moist, cultivated area in the SW¼NE¼ NW¼ sec. 16, T. 8 N., R. 8 E.:

Ap1—0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; common fine roots; strongly acid; abrupt, smooth boundary.

Ap2—4 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; massive to weak, thick, platy structure (plowpan); firm; common fine roots; strongly acid; clear, smooth boundary.

B21tg—8 to 25 inches, grayish-brown (10YR 5/2) silt loam; common, medium, faint, yellowish-brown (10YR 5/4) mottles; weak, coarse, subangular blocky structure; friable; common fine roots; common fine pores; thin patchy clay films on faces of peds and in pores; very strongly acid; gradual, wavy boundary.

B22tg—25 to 36 inches, light brownish-gray (10YR 6/2) silt loam; common, medium, faint, yellowish-brown (10YR 5/4) mottles; weak, medium and coarse, subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds and in pores; very strongly acid; gradual, wavy boundary.

C1g—36 to 52 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; massive; very friable; few, fine, black concretions; strongly acid; clear, smooth boundary.

IIC2g—52 to 74 inches, gray (10YR 5/1) silty clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; firm, plastic; few, fine, dark concretions; slightly acid; gradual, wavy boundary.

The Ap horizon is dark grayish brown or grayish brown. In some profiles the Ap2 horizon is lacking. Depth to mottling ranges from 8 to 14 inches. The B horizon is silt loam or silty clay loam. The B21tg horizon is grayish brown or dark grayish brown, and the B22tg is grayish brown, light brownish gray, or gray. The C horizon is gray, grayish brown,

or light brownish gray. The C1g horizon ranges from silt loam to loamy fine sand. In some profiles the IIC2g horizon is lacking, or it is more than 72 inches below the surface. Reaction ranges from slightly acid to strongly acid in the A horizon, medium acid to very strongly acid in the B horizon, and strongly acid to neutral in the C horizon.

In most areas in this county, these soils have slightly less clay and weaker structure in the B horizon than is defined in the range for the series, but these differences do not alter their usefulness and behavior.

Dundee soils are associated with Beulah, Dubbs, and Forestdale soils. They are finer textured than Beulah soils. They are grayer and more poorly drained than Beulah and Dubbs soils. They are better drained, less gray, and less clayey in the A and B horizons than Forestdale soils.

Dundee silt loam, 0 to 1 percent slopes (DuA).—This level soil is on the lower parts of natural levees. Areas range from about 20 to 400 acres in size. The profile of this soil is the one described as representative for the series. Included in mapping are spots of Crevasse and Dubbs soils.

This soil is well suited to farming, but excess water is a moderate hazard. Fieldwork is commonly delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans (fig. 5). Other suitable crops are corn, peanuts, grain sorghum, winter small grain, and truck crops, such as okra, green beans, potatoes, sweet corn, tomatoes, strawberries, and melons. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIw–2.

Dundee silt loam, gently undulating (DuU).—This soil is on the lower parts of natural levees, in areas of alternating long, narrow swales and low ridges that rise 2 to 3 feet above the swales. Slopes are predominantly less than 2 percent. Areas range from about 10 to 150 acres in size. The profile of this soil is similar to the one described as representative for the series, but in swales, it is more mottled. Included in mapping are spots of Crevasse and Dubbs soils.

This soil is well suited to farming, but excess water is a moderate hazard. Water accumulates in the swales of undulations, and fieldwork is often delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are corn, peanuts, grain sorghum, winter small grain, and truck crops, such as okra, green beans, potatoes, sweet corn, tomatoes, strawberries, and melons. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIw–2.

Earle Series

The Earle series consists of somewhat poorly drained, level and gently undulating soils at higher elevations in the slack-water areas. These soils formed in beds of clayey sediments over coarser textured sediments.

In a representative profile, the surface layer is very dark grayish-brown clay about 4 inches thick. The upper 26 inches of the subsoil is gray clay, and the lower 12 inches is gray loamy sand. The subsoil is mottled throughout with shades of yellowish brown. The underlying material is mottled brown loamy sand.

Earle soils are moderate to high in natural fertility. Content of organic matter is medium to low. Permeability is very slow, and the available water capacity is high. The response to fertilization is good. Tilth is difficult to maintain because of the high content of clay in the upper 30 inches, and a seedbed is difficult to prepare. These soils shrink and crack when dry and expand when wet. If they are plowed when wet, hard, persistent clods form.

These soils are suited to most crops grown in the county. Nearly all the acreage is cultivated.

Representative profile of Earle clay in a moist, cultivated area in the NW¼SE¼NE¼ sec. 29, T. 9 N., R. 6 E.:

Ap—0 to 4 inches, very dark grayish-brown (10YR 3/2) clay; weak, fine, granular structure; firm, plastic; many fine roots; strongly acid; abrupt, smooth boundary.

B21g—4 to 19 inches, gray (10YR 5/1) clay; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, plastic; few slickensides that do not intersect; common fine roots; few, fine, dark concretions; very strongly acid; gradual, smooth boundary.

B22g—19 to 30 inches, gray (10YR 6/1) clay; common, medium and fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, plastic; few slickensides that do not intersect; few fine roots; few, fine, dark concretions; very strongly acid; clear, smooth boundary.

IIB3g—30 to 42 inches, gray (10YR 6/1) loamy sand; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, subangular blocky structure; loose; few fine roots; few, fine, dark concretions; strongly acid; clear, smooth boundary.

IIC1—42 to 58 inches, brown (10YR 5/3) loamy sand; common, fine, faint, yellowish-brown mottles; massive; loose; few fine and medium roots; medium acid; diffuse boundary.

IIC2—58 to 72 inches, brown (10YR 5/3) loamy sand; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; massive; loose; few fine and medium roots; medium acid.

The Ap horizon is dark grayish brown, very dark grayish brown or dark brown. Depth to the IIB horizon is 20 to 36 inches. The IIB horizon ranges from silty clay loam to loamy sand. The IIC horizon ranges from silt loam to loamy sand. Reaction is medium acid to very strongly acid in the A horizon, strongly acid or very strongly acid in the B horizon, and medium acid to very strongly acid in the C horizon.

Earle soils are associated mainly with Alligator and Forestdale soils. They are not so poorly drained as the associated soils. They formed in thinner beds of clayey sediments than Alligator soils. They are finer textured in the A horizon than Forestdale soils and lack the translocated clay in the B horizon that is characteristic of Forestdale soils.

Earle clay (Ea).—This soil is on slack-water flats that are broken by gently undulating areas. The undulating areas have alternating long, narrow swales and low ridges that rise 2 to 5 feet above the swales. Slopes range from 0 to 2 percent. Areas are generally 10 to 80 acres in size. Included in mapping are spots of Alligator and Forestdale soils.

This soil is suited to farming, but excess water is a severe hazard. Fieldwork is delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

Figure 5.—**Soybeans on Dundee silt loam, 0 to 1 percent slopes.**

The major crops are soybeans and cotton (fig. 6). Grain sorghum is a suitable crop, and winter small grain can be grown where surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Forestdale Series

The Forestdale series consists of poorly drained, level soils at the higher elevations in slack-water areas. These soils formed in stratified beds of loamy and clayey sediments.

In a representative profile, the surface layer is dark grayish-brown and dark-gray silty clay loam about 11 inches thick. The upper 11 inches of the subsoil is gray silty clay, the middle part is gray silty clay loam that extends to a depth of about 31 inches, and the lower part is gray silt loam that extends to a depth of about 48 inches. The subsoil is mottled yellowish brown throughout. It is underlain by mottled gray fine sandy loam and silt loam.

Forestdale soils are moderate to high in natural fertility. Content of organic matter is medium to low. Permeability is very slow, and the available water capacity is high. The response to fertilization is good. Preparing a seedbed and maintaining good tilth are somewhat difficult. These soils shrink and crack when dry and expand when wet. If they are plowed when wet, hard, persistent clods form.

If drained and well managed, these soils are suited to most crops commonly grown in the county. Nearly all of acreage is cultivated.

Representative profile of Forestdale silty clay loam in a moist, cultivated area in the SE¼SW¼NE¼ sec. 26, T. 7 N., R. 8 E.:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silty clay loam; weak, medium, granular structure; firm; many fine roots; few, fine, black concretions; medium acid; abrupt, smooth boundary.

A12—6 to 11 inches, dark-gray (10YR 4/1) silty clay loam; moderate, medium, subangular blocky structure; firm; few fine roots; few, fine, black concretions; strongly acid; abrupt, smooth boundary.

B21tg—11 to 22 inches, gray (10YR 5/1) silty clay; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; moderate, medium, subangular blocky structure; firm, plastic; continuous clay films on faces of peds; few fine roots; few, fine, black concretions; very strongly acid; clear, smooth boundary.

Figure 6.—Cotton on Earle clay.

B22tg—22 to 31 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; moderate, medium, subangular blocky structure; firm, plastic; continuous clay films on faces of peds; few fine roots; many fine pores; few, fine, black concretions; strongly acid; clear, smooth boundary.

B3g—31 to 48 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, coarse, subangular blocky structure; firm; few patchy clay films on faces of peds and in pores; few fine pores; few, fine, black concretions; strongly acid; gradual, smooth boundary.

IIC1g—48 to 70 inches, gray (10YR 6/1) fine sandy loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; very friable; few, fine, black concretions; medium acid; gradual, wavy boundary.

IIC2g—70 to 84 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; very friable; few, fine, black concretions; slightly acid.

The Ap horizon is dark grayish brown or grayish brown. The Cg horizon is silt loam, fine sandy loam, or silty clay loam. Reaction ranges from very strongly acid to medium acid in the A and B horizons and from strongly acid to neutral in the C horizon.

Forestdale soils are associated with Dundee, Earle, and Alligator soils. They are more poorly drained than Dundee and Earle soils, are finer textured in the B horizon than Dundee soils, and have accumulations of translocated clay in the B horizon, which Earle and Alligator soils lack. In contrast with Alligator soils, which formed in thick beds of clay, Forestdale soils formed in stratified beds of loamy and clayey sediments.

Forestdale silty clay loam (Fo).—Individual areas of this soil range from 10 to 100 acres in size. Included in mapping are a few small areas of gently undulating Forestdale soils and spots of Dundee, Earle, and Alligator soils.

This soil is suited to farming, but excess water is a severe hazard. Fieldwork is delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled

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crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and cotton. Grain sorghum is a suitable crop. Winter small grain can be grown where surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Jeanerette Series

The Jeanerette series consists of poorly drained, level soils in abandoned stream channels and other depressions. They are mainly in the central part of the county. Generally, these soils are in areas about 2 feet lower in elevation than adjoining areas. They formed in stratified beds of loamy sediments.

In a representative profile, the surface layer is very dark grayish-brown silt loam about 6 inches thick. The upper 9 inches of the subsoil is black silty clay loam. The middle part is about 23 inches thick and is mottled yellowish-brown and grayish-brown silty clay loam and silt loam. The lower part is mottled gray silty clay that extends to a depth of about 44 inches. Below the subsoil is mottled gray silt loam and fine sandy loam.

Jeanerette soils are moderate to high in natural fertility. Content of organic matter is high. Permeability is moderately slow, and the available water capacity is high. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and movement of water through the soil.

If well managed and adequately drained, these soils are suited to most crops in the county. Nearly all the acreage is cultivated.

Representative profile of Jeanerette silt loam in a moist, cultivated area in the NW¼NW¼SE¼ sec. 13, T. 7 N., R. 7 E.:

Ap—0 to 6 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine, granular structure; friable; many fine roots; slightly acid; abrupt, smooth boundary.

B21tg—6 to 15 inches, black (10YR 2/1) silty clay loam; weak, coarse, subangular blocky structure; firm; few patchy clay films on faces of peds and in pores; common fine roots; few fine pores; slightly acid; clear, wavy boundary.

B22tg—15 to 25 inches, mottled yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2) silty clay loam; moderate, medium, subangular blocky structure; firm, slightly plastic; continuous dark-gray (10YR 4/1) clay films on faces of peds and in pores; few fine roots; few fine pores; slightly acid; clear, wavy boundary.

B23tg—25 to 38 inches, grayish-brown (10YR 5/2) silt loam; common, medium, faint, yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2) mottles; weak, medium, subangular blocky structure; friable; patchy clay films on faces of peds; few fine roots; few fine pores; some faces of peds and root channels coated with dark-gray silt; strongly acid; clear, smooth boundary.

IIB3—38 to 44 inches, gray (10YR 6/1) silty clay; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, coarse, subangular blocky structure; firm; few patchy clay films on faces of peds; few fine roots; common, fine, black concretions; very strongly acid; clear, smooth boundary.

IIIC1g—44 to 68 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; massive; friable; few fine roots; slightly acid; clear, wavy boundary.

IIIC2g—68 to 76 inches, gray (10YR 6/1) fine sandy loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; friable; few, fine, black concretions; slightly acid; abrupt, smooth boundary.

The Ap horizon is very dark grayish brown or very dark gray. The B2 horizon is silty clay loam or silt loam. The B21tg horizon is black or very dark gray. The C horizon consists of stratified loamy sediments. Reaction is slightly acid or neutral in the A through the B22tg horizons and is very strongly acid to slightly acid below.

These soils are more acid than is defined in the range for the series, and they lack calcium carbonate concretions in the lower parts of the B and C horizons. These differences, however, do not alter their usefulness and behavior.

Jeanerette soils are associated with Dundee and Dubbs soils. Jeanerette soils are more poorly drained than the associated soils and are darker colored and less acid A and upper B horizons.

Jeanerette silt loam (Je).—This level soil is in depressions. Areas range from about 10 to 60 acres in size. Included in mapping are spots of Dubbs and Dundee soils.

This soil is well suited to farming, but excess water is a moderate hazard. Fieldwork is sometimes delayed several days after a rain unless surface drains are installed. Under good management and adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Corn, grain sorghum, and winter small grain are other suitable crops. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIw–2.

Mhoon Series

The Mhoon series consists of poorly drained, level soils on the lower parts of young natural levees. These soils formed in stratified beds of predominantly loamy sediments.

In a representative profile, the surface layer is dark grayish-brown silt loam about 6 inches thick. The upper 5 inches of the subsoil is gray silt loam, the middle part is gray loam that extends to a depth of about 22 inches, and the lower part is dark-gray silty clay that extends to a depth of about 34 inches. The subsoil is mottled with shades of yellowish brown throughout. Below the subsoil is stratified, mottled gray silt loam and silty clay loam.

Mhoon soils are high in natural fertility. Content of organic matter is moderate to low. Permeability is slow, and the available water capacity is high. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and the movement of water through the soil.

These soils are suited to most crops commonly grown in the county. Nearly all the acreage is cultivated.

Representative profile of Mhoon silt loam in a moist, cultivated area in the SE¼NE¼SW¼ sec. 9, T. 8 N., R. 9 E.:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; lower 2 inches is a platy plowpan; friable; many fine roots; slightly acid; abrupt, smooth boundary.

B21g—6 to 11 inches, gray (10YR 5/1) silt loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles;

weak, medium, subangular blocky structure; friable; few fine roots; few, fine, black concretions; slightly acid; clear, smooth boundary.

B22g—11 to 22 inches, gray (10YR 5/1) loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; friable; few fine roots; few fine pores; few, fine, black concretions; neutral; clear, smooth boundary.

IIB23g—22 to 34 inches, dark-gray (10YR 4/1) silty clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium and fine, subangular blocky structure; firm; few fine roots; few fine pores; few worm casts; common, fine, black concretions; neutral; clear, smooth boundary.

IIC1g—34 to 51 inches, gray (10YR 5/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; friable; few fine roots; few fine pores; common, fine, black concretions; neutral; gradual, wavy boundary.

IIC2g—51 to 70 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; firm; common, fine, black concretions; mildly alkaline; abrupt, smooth boundary.

IIC3g—70 to 84 inches, gray (10YR 5/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; friable; mildly alkaline.

The Ap horizon is dark grayish brown or dark gray. The B horizon is dark gray or gray. Above the IIB horizon, texture is loam, silt loam, or silty clay loam. In some profiles there are thin lenses of silty clay and fine sandy loam within the B horizon. In some areas the IIB23g horizon is lacking. Reaction is slightly acid to mildly alkaline throughout the profile.

Mhoon soils are associated with Commerce and Sharkey soils. They are grayer and more poorly drained than Commerce soils. In contrast with Sharkey soils, they formed in predominantly loamy rather than clayey sediments.

Mhoon silt loam (Mh).—This level soil is on the lower parts of natural levees. Areas range from about 10 to 40 acres in size. Included in mapping are spots of Commerce and Sharkey soils.

This soil is well suited to farming. Excess water is a moderate hazard, and fieldwork is often delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and cotton. Other suitable crops are alfalfa, grain sorghum, corn, and winter small grain. Okra is a suitable truck crop. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIw–2.

Robinsonville Series

The Robinsonville series consists of well-drained, level soils on the higher parts of young natural levees. These soils formed in stratified loamy sediments.

In a representative profile, the surface layer is dark grayish-brown very fine sandy loam about 6 inches thick. It is underlain to a depth of about 60 inches by brown very fine sandy loam. Below this is mottled grayish-brown silt loam.

Robinsonville soils are moderate to high in natural fertility. Content of organic matter is moderate to low. Permeability is moderately rapid, and the available water capacity is moderate to high. The response to fertilization is good. Tilth is easy to maintain. In places a plowpan has formed. The pan restricts root penetration and the movement of water through the soil. These soils warm early in spring and can be planted early.

If protected from flooding, Robinsonville soils are well suited to crops commonly grown in the county. Nearly all the acreage is cultivated.

Representative profile of Robinsonville very fine sandy loam, frequently flooded, in a moist, cultivated area in the NE¼SW¼NE¼ sec. 9, T. 8 N., R. 9 E.:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; weak, fine, granular structure; friable; many fine roots; neutral; abrupt, smooth boundary.

C1—6 to 12 inches, brown (10YR 4/3) very fine sandy loam; weak, medium, subangular blocky structure; many fine roots; few grayish-brown spots in lower part that disappear when wetted; neutral; clear, smooth boundary.

C2—12 to 30 inches, brown (10YR 5/3) very fine sandy loam; massive to platy rock structure; friable; common fine roots; few fine root channels; common bedding planes and thin sheets of silt; moderately alkaline; clear, smooth boundary.

C3—30 to 45 inches, brown (10YR 5/3) very fine sandy loam; massive to platy rock structure; very friable; few fine roots; common bedding planes and thin sheets of silt; few grayish-brown spots that disappear when wetted; moderately alkaline; calcareous; clear, wavy boundary.

C4—45 to 60 inches, brown (10YR 4/3) very fine sandy loam; massive to platy rock structure; friable; few fine roots; common bedding planes and thin sheets of silt; moderately alkaline; calcareous; clear, smooth boundary.

C5—60 to 72 inches, grayish-brown (10YR 5/2) silt loam; common, medium, faint, yellowish-brown (10YR 5/4) mottles; massive; friable; moderately alkaline; calcareous.

The Ap horizon is dark grayish brown or brown. The C horizon is very fine sandy loam to sandy loam to a depth of 45 inches or more. In some profiles it is pale brown. The C4 and C5 horizons range from silt loam to loamy sand. Reaction is slightly acid to moderately alkaline throughout the profile.

Robinsonville soils are associated with Commerce and Crevasse soils. They are less gray and better drained than Commerce soils and lack the B horizon characteristic of those soils. They are finer textured than Crevasse soils.

Robinsonville very fine sandy loam (Rn).—This level soil is on the higher parts of natural levees. Areas range from 10 to 100 acres in size. Included in mapping are spots of Commerce and Crevasse soils.

This soil is well suited to farming. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Corn, grain sorghum, peanuts, winter small grain, and truck crops, such as okra, green beans, potatoes, sweet corn, tomatoes, and melons, are all suitable. Suitable pasture plants are bermudagrass and white clover. Capability unit I–1.

Robinsonville very fine sandy loam, frequently flooded (Ro).—This level soil is on the higher parts of natural levees, between the levee and the Mississippi River. Areas range from 10 to 100 acres in size. This soil has the profile described as representative for the series. It is flooded for periods of 8 to 50 days on an average of about once every 2 years, generally between January and June. Included in mapping are spots of Commerce and Crevasse soils.

This soil is suited to farming, but flooding is a very severe hazard. Only warm season annual crops that

require a short growing season can be grown safely. Soil blowing is a moderate hazard in spring if the soil is bare. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crop is soybeans. Some cotton is grown, but sometimes the crop is lost because of flooding. Bermudagrass is a well suited pasture plant. Capability unit IVw–2.

Sharkey Series

The Sharkey series consists of poorly drained, level and gently undulating soils in slack-water areas. These soils formed in thick beds of clayey sediments.

In a representative profile, the surface layer is mottled very dark grayish-brown and very dark gray silty clay about 8 inches thick. The subsoil is about 40 inches of mottled dark-gray and gray clay. Below the subsoil is about 4 inches of mottled gray silty clay loam underlain by mottled gray clay.

Sharkey soils are high in natural fertility. Content of organic matter is moderate to high. Permeability is very slow, and the available water capacity is high. The response to fertilization is good. Tilth is difficult to maintain because of the high content of clay, and a seedbed is difficult to prepare. These soils shrink and crack when dry and expand when wet. If they are plowed when wet, hard, persistent clods form.

If drained and well managed, these soils are suited to most crops grown in the county. Most of the acreage is cultivated.

Representative profile of Sharkey silty clay, frequently flooded, in a moist, cultivated area in the NW¼SW¼ SE¼ sec. 4, T. 8 N., R. 9 E.:

Ap—0 to 5 inches, very dark grayish-brown (10YR 3/2) silty clay; moderate, fine, granular structure; firm, very plastic; many fine roots; slightly acid; clear, smooth boundary.

A12—5 to 8 inches, very dark gray (10YR 3/1) silty clay; few, fine, distinct, dark yellowish-brown mottles; moderate, medium, subangular blocky structure; firm, very plastic; common fine roots; slightly acid; clear, smooth boundary.

B21g—8 to 17 inches, dark-gray (10YR 4/1) clay; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, very plastic; common fine roots; slightly acid; gradual, smooth boundary.

B22g—17 to 25 inches, dark-gray (10YR 4/1) clay; common, medium, distinct, yellowish-brown (10YR 5/6) and reddish-brown (5YR 5/4) mottles; moderate, medium, subangular blocky structure; firm, very plastic; few fine and medium roots; few root channels; neutral; gradual, smooth boundary.

B23g—25 to 36 inches, gray (10YR 5/1) clay; common, medium, prominent, dark-red (2.5YR 3/6) mottles; some mottles follow along root channels; moderate, medium, subangular blocky structure; firm, very plastic; few fine and medium roots; few slickensides that do not intersect; neutral; gradual, smooth boundary.

B24g—36 to 48 inches, gray (10YR 5/1) clay; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, very plastic; few fine roots; neutral; abrupt, smooth boundary.

IIC1g—48 to 52 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; firm, slightly plastic; neutral; abrupt, smooth boundary.

IIIC2g—52 to 76 inches, gray (10YR 5/1) clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, angular blocky structure; firm, very plastic; neutral.

The A horizon is very dark grayish brown, dark grayish brown, or very dark gray. The B horizon is dark gray or gray. The upper 10 to 40 inches of soil material is 60 to 75 percent clay. The C horizon is dark-gray or gray silty clay loam, silty clay, or clay. Reaction is slightly acid to mildly alkaline throughout the profile.

Sharkey soils are associated with Alligator, Bowdre, Mhoon, and Tunica soils. They formed in thicker beds of clayey sediments than Bowdre and Tunica soils and are grayer and more poorly drained than Bowdre soils. They are finer textured than the Mhoon soils.

Sharkey silty clay, 0 to 1 percent slopes (ShA).—This level soil is on broad flats, generally in large areas, some as large as several thousand acres. Included in mapping are small areas of gently undulating Sharkey soils and spots of Alligator, Bowdre, Mhoon, and Tunica soils.

This soil is suited to farming, but excess water is a severe hazard. Fieldwork is often delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans (fig. 7) and cotton. Other suitable crops are rice, alfalfa (fig. 8), grain sorghum, and winter small grain. Okra is a truck crop that can be grown. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Sharkey silty clay, gently undulating (ShU).—This soil is in areas of alternating long, narrow swales and low ridges that rise 2 to 5 feet above the swales. Areas are generally along the margins of broad flats, and most range from 40 to several hundred acres in size. Slopes are less than 3 percent. Included in mapping are small, level areas and spots of Bowdre and Tunica soils.

This soil is suited to farming, but excess water is a severe hazard. Water accumulates in the swales and fieldwork is delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans, cotton, and alfalfa. Grain sorghum is a suitable crop, and winter small grain can be grown where surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Sharkey silty clay, frequently flooded (Sk).—This level and gently undulating soil is on broad flats. Areas range from about 40 to 200 acres in size. This soil has the profile described as representative for the series. It occurs between the levee and the Mississippi River and is flooded for periods of 8 to 50 days, on an average of about once every 2 years, generally between January and June. Included in mapping were spots of Bowdre and Tunica soils.

This soil is suited to farming, but flooding is a very severe hazard. Only warm-season annual crops that require a short growing season can be grown safely (fig. 9). Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

Figure 7.—**An excellent crop of soybeans ready for harvesting on Sharkey silty clay, 0 to 1 percent slopes.**

The main crops are soybeans and grain sorghum. Bermudagrass is the most suitable pasture plant. Capability unit IVw–1.

Tunica Series

The Tunica series consists of poorly drained, level and gently undulating soils in broad slack-water areas. These soils formed in thin beds of clayey sediments over coarser textured sediments.

In a representative profile, the surface layer is very dark grayish-brown clay about 4 inches thick. The subsoil extends to a depth of about 29 inches. The upper part is mottled dark-gray and gray clay about 16 inches thick. The lower part is mottled gray silty clay about 9 inches thick. Below this is mottled brown sandy loam underlain by yellowish-brown sand.

Tunica soils are moderate to high in natural fertility. Content of organic matter is moderate. Permeability is very slow, and the available water capacity is high. The response to fertilization is good. Tilth is difficult to maintain because of the high content of clay, and a seedbed is difficult to prepare. These soils shrink and crack when dry and expand when wet. If they are plowed when wet, hard, persistent clods form.

If adequately drained and well managed, these soils are suited to most crops grown in the county. Nearly all the acreage is cultivated.

Representative profile of Tunica clay, frequently flooded, in a moist, cultivated area in the SE¼SE¼SE¼ sec. 12, T. 9 N., R. 8 E.:

Ap—0 to 4 inches, very dark grayish-brown (10YR 3/2) clay; weak, medium, subangular blocky structure; firm, very plastic; many fine roots; common fine pores; neutral; abrupt, smooth boundary.

B21g—4 to 7 inches, dark-gray (10YR 4/1) clay; few, fine, distinct, dark-brown mottles; moderate, medium, subangular blocky structure; firm, very plastic; many fine roots; common fine pores; few fine root channels; neutral; clear, wavy boundary.

B22g—7 to 13 inches, gray (10YR 5/1) clay; common, fine, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm, very plastic; common fine roots; common fine pores; few fine root channels; slightly acid; clear, wavy boundary.

B23g—13 to 20 inches, gray (10YR 5/1) clay; common, medium and fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm, very plastic; few slickensides that do not intersect; few fine roots; few fine pores; few fine root channels; slightly acid; clear, wavy boundary.

B3g—20 to 29 inches, gray (10YR 5/1) silty clay; many, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure;

Figure 8.—**Typical field drain in field of alfalfa. The soil is Sharkey silty clay, 0 to 1 percent slopes.**

firm, plastic; few fine roots; common fine pores; few, fine, dark concretions; slightly acid; abrupt, wavy boundary.

IIC1—29 to 47 inches, brown (10YR 5/3) sandy loam; common, medium, faint, dark-brown (10YR 4/4) mottles; massive; friable; neutral; gradual, wavy boundary.

IIIC2—47 to 72 inches, yellowish-brown (10YR 5/4) sand; single grain; loose; neutral.

The Ap horizon is very dark grayish brown or dark grayish brown. The B horizon is dark-gray or gray silty clay or clay. The IIC horizon ranges from brown to gray. The IIC1 horizon ranges from silt loam to sandy loam, and the IIC2 horizon from silt loam to sand. Depth to the IIC horizon is 20 to 36 inches. Reaction is slightly acid to mildly alkaline throughout the profile.

These soils do not have an abrupt textural change between the B3g and IIC1 horizons. In that respect they are outside the defined range for the series, but this difference does not alter their usefulness and behavior.

Tunica soils are associated with Mhoon and Sharkey soils. They are finer textured in the A and B2 horizons than Mhoon soils, and they formed in thinner beds of clayey sediment than the Sharkey soils.

Tunica clay, 0 to 1 percent slopes (TnA).—This level soil is at the higher elevations in slack-water areas. Areas range from about 10 to 150 acres in size. Included in mapping are a few, small, gently undulating areas and spots of Mhoon and Sharkey soils.

This soil is suited to farming, but excess water is a severe hazard. Fieldwork is often delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are alfalfa, grain sorghum, and winter small grain. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Figure 9.—**Young soybeans on Sharkey silty clay, frequently flooded. The beans were planted after the spring flood receded.**

Tunica clay, gently undulating (TnU).—This soil is in broad slack-water tracts, in areas of alternating long, narrow swales and low ridges that rise 2 to 5 feet above the swales. Slopes are less than 3 percent. Areas range from about 10 to 300 acres in size. Included in mapping are spots of Mhoon and Sharkey soils.

This soil is suited to farming, but excess water is a severe hazard. Water accumulates in the swales, and fieldwork is delayed several days after a rain unless surface drains are installed. Under good management that includes adequate drainage, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are cotton and soybeans. Other suitable crops are alfalfa and grain sorghum. Winter small grain can be grown where surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. Capability unit IIIw–1.

Tunica clay, frequently flooded (Tu).—This level and gently undulating soil is in slack-water areas between the levee and the Mississippi River. Areas range from about 10 to 100 acres in size. This soil has the profile described as representative for the series. It is flooded for periods ranging from 8 to 50 days, generally between January and June. Floods occur on an average of about once every 2 years. Included in mapping are spots of Sharkey soils.

This soil is suited to farming, but flooding is a very severe hazard. Only warm-season annual crops that require a short growing season can be grown safely. Under good management, clean-tilled crops that leave a large amount of residue can be grown year after year.

The main crops are soybeans and grain sorghum. The best suited pasture plant is bermudagrass. Capability unit IVw–1.

Capability Grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The groups are made according to the limitations of the soils when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for other specific purposes.

In the capability system, all kinds of soil are grouped at three levels, the capability class, subclass, and unit.

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. In class VIII are soils and landforms so rough, so shallow, or otherwise so limited that they do not produce worthwhile yields of crops, forage, or wood products.

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIIw. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by *w*, *s*, and *c*, because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIs–1 or IIIw–1. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

Farmers and others may find it practical to use and manage alike some of the different kinds of soils. These readers can make good use of the capability grouping. Following is a descriptive outline of the capability grouping as it applies in Crittenden County. The capability designation for any mapping unit in the county can be found in the "Guide to Mapping Units" at the back of this publication, or at the end of the description of each mapping unit in the section "Descriptions of the Soils," where the management of each soil for crops and pasture is described.

Class I soils have few limitations that restrict their use.
- Unit I–1. Level and gently undulating, somewhat poorly drained to well drained, loamy soils.

Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- Unit IIw–1. Level and gently undulating, somewhat poorly drained, clayey soils.
- Unit IIw–2. Level and gently undulating, somewhat poorly drained and poorly drained, loamy soils.
- Unit IIs–1. Level and gently undulating, somewhat excessively drained, sandy and loamy soils.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Unit IIIw–1. Level and gently undulating, poorly drained and somewhat poorly drained, predominantly clayey soils.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
- Unit IVw–1. Level and gently undulating, somewhat poorly drained and poorly drained, clayey soils subject to frequent flooding in winter and spring.
- Unit IVw–2. Level and gently undulating, somewhat poorly drained and well drained, loamy soils subject to frequent flooding in winter and spring.
- Unit IVw–3. Gently undulating, excessively drained, sandy soils subject to frequent flooding in winter and spring.
- Unit IVs–1. Gently undulating, excessively drained, sandy soils.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife habitat. (None in Crittenden County.)

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat. (None in Crittenden County.)

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat. (None in Crittenden County.)

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply, or to esthetic purposes. (None in Crittenden County.)

Predicted Yields [3]

Predicted yields per acre of the principal crops grown in the county are shown in table 5. The predictions are based mainly on data supplied by farmers and other agricultural workers in Crittenden County. These yields are not the highest that can be obtained, but the yields generally obtained by using the proper equipment at the right time to prepare the soil, plant the crops, control weeds, and harvest crops; by following a systematic program for controlling insects and plant diseases; by choosing crop varieties that are well suited to the soil and to the type of farming; by draining wet soils; and by irrigating crops.

[3] W. WILSON FERGUSON, conservation agronomist, Soil Conservation Service, helped prepare this section.

TABLE 5.—*Predicted yields per acre of principal crops under improved management*

[Absence of figure indicates that the soil is not suited to the crop or the crop is not commonly grown]

Soil	Alfalfa	Cotton	Rice	Soybeans	Wheat
	Tons	*Lb. of lint*	*Bu.*	*Bu.*	*Bu.*
Alligator silty clay, 0 to 1 percent slopes		500	110	30	35
Alligator silty clay, gently undulating		475	100	30	35
Beulah soils		575		30	45
Borrow pits (not regularly used for crops or pasture)					
Bowdre silty clay, 0 to 1 percent slopes	3.5	650		35	40
Bowdre silty clay, gently undulating	3.5	650		35	40
Bowdre silty clay, frequently flooded				35	
Commerce silt loam	3.5	775		40	45
Commerce silt loam, frequently flooded				40	
Crevasse fine sand		350		20	25
Crevasse fine sand, frequently flooded				20	
Dubbs silt loam, 0 to 1 percent slopes		775		40	45
Dubbs silt loam, gently undulating		750		40	45
Dundee silt loam, 0 to 1 percent slopes		750		40	45
Dundee silt loam, gently undulating		750		40	45
Earle clay		600		35	35
Forestdale silty clay loam		600		35	35
Jeanerette silt loam		750		40	40
Mhoon silt loam	3.0	650		40	40
Robinsonville very fine sandy loam		700		35	45
Robinsonville very fine sandy loam, frequently flooded				35	
Sharkey silty clay, 0 to 1 percent slopes	3.0	550	110	30	35
Sharkey silty clay, gently undulating	3.0	525	100	30	35
Sharkey silty clay, frequently flooded				30	
Tunica clay, 0 to 1 percent slopes	3.5	600	110	35	35
Tunica clay, gently undulating	3.5	600		35	35
Tunica clay, frequently flooded				35	

Use of the Soils for Wildlife [4]

Soils are related to the kinds and the abundance of wildlife through the vegetation they support and the habitat the vegetation provides. Desirable habitat often depends on the nearness of vegetation to water. The kind and amount of vegetation are closely related to soil characteristics and land use.

All fish and wildlife respond to the basic characteristics of soils. This response is affected in many ways by fertility, slope, wetness, and other characteristics of soils. The permeability rate determines whether or not the soil can be used to impound water in ponds and lakes.

Extensive wooded areas, such as those in the vicinity of Wapanocca Lake and a few areas along the Mississippi River, are well suited as habitat for deer, wild turkey, squirrel, and other woodland wildlife because these areas provide suitable food, cover, and drinking water. Not many people live in these areas, and wildlife is not unduly disturbed.

In table 6 the soils of the county are rated according to their suitability for plants, for water developments used by wildlife, and as habitat for openland, woodland, and wetland wildlife. The ratings given in the table are *well suited*, *suited*, *poorly suited*, and *unsuited*. *Well suited* indicates that the soils are relatively free of limitations or that the limitations are easily overcome; *suited* means that the limitations need consideration but can be overcome by good management; *poorly suited* indicates that the limitations are severe and difficult to overcome; and *unsuited* indicates that use of the soils for the kind of wildlife or habitat specified is impractical, or impossible.

The seven elements of wildlife habitat are defined in the following paragraphs, and examples are given of each.

Grain and seed crops are domestic grain or seed-producing annuals that produce food for wildlife. Examples are wheat, corn, sorghums, oats, millet, rice, soybeans, and sunflower.

Grasses and legumes are domestic or introduced plants that furnish food and cover for wildlife. Examples are fescue, bermudagrass, panicgrasses, bristlegrasses, clover, and alfalfa.

Wild herbaceous upland plants are native or introduced annual or perennial grasses and forbs (weeds) that provide food and cover primarily for upland wildlife. These plants are established naturally. Examples are croton, switch cane, pokeweed, tickclover, wild beans, wild peas, partridge peas, bluestem, indiangrass, strawberries, and wild lespedeza.

Hardwood trees and shrubs are nonconiferous trees, shrubs, and woody vines that furnish fruits, nuts, seed, buds, twigs (browse), or foliage that are used for wildlife. Most species are established naturally, but they may also be seeded. Examples of trees are oak, cherry, mulberry, dogwood, viburnum, and maple. Examples of vines and shrubs are honeysuckle, blackberry, greenbrier, wild grape, and multiflora rose.

Wetland food and cover plants are annual and perennial, domestic or wild herbaceous plants that grow on moist or wet sites. These plants produce the food and cover commonly used by wetland wildlife. Examples are

[4] ROY A. GRIZZELL, biologist, Soil Conservation Service, helped prepare this section.

TABLE 6.—*Suitability of soils for elements of*

Mapping unit and symbol	Elements of wildlife habitat			
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood trees and shrubs
Alligator silty clay, 0 to 1 percent slopes: AlA.	Suited to poorly suited.	Suited	Suited	Well suited
Alligator silty clay, gently undulating: AlU.	Suited to poorly suited.	Suited	Suited	Well suited
Beulah soils: Be	Suited	Suited	Suited	Suited
Borrow pits: Bp. Variable material. Onsite determination necessary.				
Bowdre silty clay, 0 to 1 percent slopes: BrA.	Suited	Suited	Suited	Well suited
Bowdre silty clay, gently undulating: BrU.	Suited	Suited	Suited	Well suited
Bowdre silty clay, frequently flooded: Bw.	Poorly suited	Suited	Suited	Well suited
Commerce silt loam: Cm	Well suited	Well suited	Well suited	Well suited
Commerce silt loam, frequently flooded: Co.	Poorly suited	Suited	Suited	Well suited
Crevasse fine sand: Cr	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Crevasse fine sand, frequently flooded: Cs.	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Dubbs silt loam, 0 to 1 percent slopes: DsA.	Well suited	Well suited	Well suited	Well suited
Dubbs silt loam, gently undulating: DsU.	Well suited	Well suited	Well suited	Well suited
Dundee silt loam, 0 to 1 percent slopes: DuA.	Well suited	Well suited	Well suited	Well suited
Dundee silt loam, gently undulating: DuU.	Well suited	Well suited	Well suited	Well suited
Earle clay: Ea	Suited	Suited	Suited	Well suited
Forestdale silty clay loam: Fo	Suited	Suited	Suited	Well suited
Jeanerette silt loam: Je	Suited	Suited	Suited	Well suited
Mhoon silt loam: Mh	Suited	Suited	Suited	Well suited
Robinsonville very fine sandy loam: Rn	Well suited	Well suited	Well suited	Well suited
Robinsonville very fine sandy loam, frequently flooded: Ro.	Poorly suited	Suited	Suited	Well suited
Sharkey silty clay, 0 to 1 percent slopes: ShA.	Suited to poorly suited.	Suited	Suited	Well suited
Sharkey silty clay, gently undulating: ShU.	Suited to poorly suited.	Suited	Suited	Well suited
Sharkey silty clay, frequently flooded: Sk.	Poorly suited	Suited	Suited	Well suited
Tunica clay, 0 to 1 percent slopes: TnA	Suited to poorly suited.	Suited	Suited	Well suited
Tunica clay, gently undulating: TnU	Suited to poorly suited.	Suited	Suited	Well suited
Tunica clay, frequently flooded: Tu	Poorly suited	Suited	Suited	Well suited

wildlife habitat and kinds of wildlife

Elements of wildlife habitat—Continued			Kinds of wildlife		
Wetland food and cover plants	Shallow water developments	Excavated ponds	Openland	Woodland	Wetland
Well suited	Well suited	Well suited	Suited	Well suited	Well suited.
Well suited	Suited	Well suited	Suited	Well suited	Well suited.
Unsuited	Unsuited	Unsuited	Suited	Suited	Unsuited.
Suited	Suited	Suited	Suited	Well suited	Suited.
Suited	Suited to poorly suited.	Suited	Suited	Well suited	Suited.
Suited	Poorly suited	Unsuited	Suited	Well suited	Suited.
Suited	Suited	Suited	Well suited	Well suited	Suited.
Suited	Poorly suited	Unsuited	Suited	Well suited	Suited.
Unsuited	Unsuited	Unsuited	Poorly suited	Poorly suited	Unsuited.
Unsuited	Unsuited	Unsuited	Poorly suited	Poorly suited	Unsuited.
Poorly suited	Poorly suited	Suited to poorly suited.	Well suited	Well suited	Poorly suited.
Poorly suited	Poorly suited	Suited to poorly suited.	Well suited	Well suited	Poorly suited.
Suited	Suited	Suited	Well suited	Well suited	Suited.
Suited	Suited	Suited	Well suited	Well suited	Suited.
Suited	Well suited	Well suited to poorly suited.	Suited	Well suited	Suited.
Well suited	Well suited	Well suited	Suited	Well suited	Well suited.
Well suited	Well suited	Suited	Suited	Well suited	Well suited.
Well suited	Well suited	Suited	Suited	Well suited	Well suited.
Unsuited	Unsuited	Unsuited	Well suited	Well suited	Unsuited.
Unsuited	Unsuited	Unsuited	Suited	Well suited	Unsuited.
Well suited	Well suited	Well suited	Suited	Well suited	Well suited.
Well suited	Suited	Well suited	Suited	Well suited	Well suited.
Well suited	Poorly suited	Unsuited	Suited	Well suited	Suited.
Well suited	Well suited	Suited	Suited	Well suited	Well suited.
Well suited	Suited	Suited	Suited	Well suited	Well suited.
Well suited	Poorly suited	Unsuited	Suited	Well suited	Suited.

rice, smartweed, wild millet, rice cutgrass, cattail, naiad, pondweed, water lilies, and sesbania.

Shallow water developments are water areas that have been made by impounding water, digging excavations, or using devices to control water. In table 6 the soils are rated according to their suitability for such developments. Examples are ricefields, flooded soybean fields, shallow dugouts, and devices that control the water level on bottom land.

Ponds are dug-out or impounded areas that hold enough water of suitable depth and quality to support fish and wildlife.

In table 6 the wildlife of the county are classified as openland, woodland, and wetland.

Openland wildlife normally inhabits crop fields, pastures and meadows, and odd fields of herbaceous vegetation. It includes bobwhites, doves, cottontail rabbits, and other farm game.

Woodland wildlife normally inhabits wooded areas of trees and shrubs. Examples are deer, raccoon, turkey, and squirrel.

Wetland wildlife normally inhabits wet areas, such as ponds, marshes, rivers, bayous, and swamps. It includes wood ducks, mallards, Canada geese, rail, heron, mink, and muskrats.

Wildlife habitat can be managed by planting choice food plants, managing existing vegetation, and locating water developments where water is scarce or needed.

Information about the soils helps the landowner determine specific sites for wildlife developments and establish food and cover plants and provides a basis for improving habitat for many kinds of wildlife.

Local representatives of the Soil Conservation Service may be consulted for help in planning and establishing food supply and habitat for a specific area. For additional information on the suitability of each soil, refer to the detailed soil descriptions in the section "Descriptions of the Soils."

Use of the Soils in Engineering [5]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, erosion control structures, drainage systems, and sewage disposal systems. Among the properties most important to engineers are permeability, strength, consolidation characteristics, texture, plasticity, and soil reaction. Depth to unconsolidated materials and topography are also important.

Information concerning these and related soil properties is given in tables 7 and 8. The estimates and interpretations in these tables can be used to—

1. Make studies that will aid in selecting and developing industrial, commercial, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils in planning drainage systems, farm ponds, irrigation systems, terraces, waterways, and diversion terraces.
3. Make preliminary evaluations of soil conditions that will aid in selecting sites for highways, airports, pipelines, and cables and in planning detailed investigations at selected locations.
4. Locate probable sources of gravel, sand, and other construction material.
5. Correlate performance of soil mapping units to develop information that will be useful in planning engineering practices and in designing and maintaining engineering structures.
6. Determine the suitability of soils for cross-country movement of vehicles and construction equipment.
7. Supplement other publications, such as maps, reports, and aerial photographs, that are used in preparation of engineering reports for a specific area.
8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

The engineering interpretations reported in tables 7 and 8 do not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads or excavations deeper than the depths reported (ordinarily about 6 feet). Even in these situations, however, the soil map is useful in planning more detailed field investigations and in indicating the kinds of problems that may be expected. Depth to bedrock is not given in the tables because the soils are deep enough that bedrock does not affect their use.

Some of the terms used by soil scientists have special meanings in soil science that may not be familiar to engineers. These terms are defined in the Glossary.

Engineering Classification Systems

The two systems most commonly used in classifying soils for engineering are the systems approved by the American Association of State Highway Officials (AASHO) and the Unified system.

The AASHO system (*1*) [6] is used to classify soils according to those properties that affect use in highway construction. In this system all soil material is classified in seven principal groups. The groups range from A–1, which consists of soils that have the highest bearing strength and are the best soils for subgrade, to A–7, which consists of soils that have the lowest strength when wet.

In the Unified system (*14*) soils are classified according to their texture and plasticity and their performance as engineering construction material. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. GP and GW are clean gravels, and GM and GC are gravels that include, respectively, an appreciable amount of nonplastic and plastic fines. SP and SW are clean sands. SM and SC are sands that include fines of silt and clay. ML and CL are silts and clays that have a low liquid limit, and MH and CH are silts and clays that have a high liquid limit.

[5] Prepared by KIRK WALKER, JR., civil engineer, Soil Conservation Service.

[6] Italic numbers in parentheses refer to Literature Cited, p. 46.

Soil scientists use the USDA textural classification (*12*). In this, the texture of the soil is determined according to the proportion of soil particles smaller than 2 millimeters in diameter, that is, the proportion of sand, silt, and clay. Textural modifiers, such as gravelly, stony, shaly, and cobbly, are used as needed.

Table 7 shows the estimated classification of all the soils in the county according to all three systems of classification.

Estimated Properties of the Soils

Table 7 provides estimates of soil properties important in engineering. The estimates are based on field classification and descriptions, physical and chemical test data from comparable soils in adjacent areas, and from detailed experience in working with the individual kind of soil in the survey area.

USDA texture is determined by the relative proportions of sand, silt, and clay in soil material that is less than 2.0 millimeters in diameter (*12*). "Sand," "silt," "clay," and some of the other terms used in the USDA textural classification are defined in the Glossary.

Permeability as used in table 7 relates only to movement of water downward through undisturbed, uncompacted soil. It does not include lateral seepage. The estimates are based on structure and porosity of soil. Plowpans, surface crusts, and other properties resulting from use of the soil are not considered.

Available water capacity, given in inches per inch of soil, is the amount of water a soil can hold and make available to most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point.

Reaction is the degree of acidity or alkalinity of a soil, expressed as a pH value. The pH value and relative terms used to describe soil reaction are explained in the Glossary.

Shrink-swell potential is an indication of the volume change to be expected of the soil material with changes in moisture content. Shrinking and swelling of soils cause much damage to building foundations, roads, and other structures. A high shrink-swell potential indicates hazards to the maintenance of structures constructed in, on, or with such material.

Engineering Interpretations

Table 8 contains selected information useful to engineers and others who plan to use soil material in construction of highways, farm facilities, and earthworks. Detrimental or undesirable features are emphasized, but very important desirable features also are listed. The ratings and other interpretations in this table are based on estimated engineering properties of the soils in table 7, on available test data from other soil surveys, and on field experience. The information applies only to the soil depth indicated in table 7, but it is reasonably reliable to depths of several more feet for some soils.

Topsoil is a term used to designate a fertile soil or soil material, ordinarily rich in organic matter, used as a topdressing for lawns, gardens, roadbanks, and the like. The ratings indicate suitability for such use.

Ratings in the column headed "Sand" are based on the probability that delineated areas of the soil contain deposits of sand. The ratings do not indicate the quality or the size of the deposits.

Road fill is material used to build embankments. The ratings indicate performance of soil material moved from borrow areas for these purposes.

Highway location is influenced by features of the undisturbed soil that affect construction and maintenance of highways. The soil features, favorable as well as unfavorable, are the principal ones that affect geographic location of highways.

Winter grading is affected chiefly by features, especially unfavorable ones, that are relevant to moving, mixing, and compacting soil in roadbuilding when temperatures are below freezing or when the soil material is wet.

Dikes and levees are low structures designed to impound or divert water. The soil features considered are those that affect use of the soil as material for constructing low dikes and levees.

Farm pond and reservoir areas are affected mainly by seepage loss of water, and the soil features considered are those that influence such seepage.

Farm pond and reservoir embankments serve as dams. The soil features of both subsoil and underlying material are those important to the use of soils for constructing embankments.

Agricultural drainage is essential to the use of many of the soils that have restricted drainage. The factors considered for farm drainage are those features and qualities of the soil that affect the installation and performance of drainage works.

Irrigation during part of the growing season is beneficial for many of the commonly grown crops and is necessary in rice culture. The factors considered are those features and qualities of soils that affect their suitability for irrigation.

Use of the Soils for Town and Country Planning

Table 9 gives the degree and kind of limitations of the soils of Crittenden County for selected nonfarm uses. The degrees of limitation reflect all the features of the given soil, to a depth of 6 feet, that affect a particular use. A *slight* limitation means that soil properties are favorable for the specified use. Limitations are so minor that they can be easily overcome. Good performance and low maintenance can be expected from these soils. A *moderate* limitation means that soil properties are moderately favorable for the specified use. Limitations can be overcome or modified with planning, design, or special maintenance. A *severe* limitation means that the soil has one or more properties unfavorable for the specified use. Limitations are difficult and costly to modify or overcome, requiring major soil reclamation, special design, or intense maintenance.

The properties considered in evaluating the limitations for the uses listed in table 9 are given in the paragraphs that follow.

TABLE 7.—*Estimates of soil properties*

[Symbol > means more than;

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification		
			USDA texture	Unified	AASHO
	Feet	*Inches*			
Alligator: AlA, AlU	<0.5	0–4	Silty clay	CH	A–7
		4–49	Clay	CH	A–7
		49–69	Silty clay	CH	A–7
		69–81	Silt loam	ML or CL	A–4 or A–6
Beulah: Be	4–6	0–7	Fine sand	SM	A–2 or A–4
		7–25	Very fine sandy loam	SM or ML	A–4
		25–70	Loamy fine sand and fine sand.	SM	A–2 or A–4
Borrow pits: Bp. Too variable to rate.					
Bowdre: BrA, BrU, Bw	0.5–1.5	0–17	Silty clay	CH	A–7
		17–60	Silt loam	ML or CL	A–4 or A–6
		60–76	Clay	CH	A–7
Commerce: Cm, Co	0.5–1	0–30	Silt loam	ML or CL	A–4 or A–6
		30–48	Silty clay loam	CL or CH	A–7
		48–57	Silt loam	ML or CL	A–4 or A–6
		57–80	Silty clay loam	CL or CH	A–7
Crevasse: Cr, Cs	>6	0–70	Fine sand and sand	SM or SP–SM	A–2 or A–3
Dubbs: DsA, DsU	2–3	0–4	Silt loam	ML	A–4
		4–18	Silty clay loam	CL or CH	A–7
		18–45	Silt loam	ML or CL	A–4 or A–6
		45–51	Loamy fine sand	SM	A–2
		51–69	Fine sandy loam	SM or ML	A–4
		69–82	Loamy fine sand	SM	A–2
Dundee: DuA, DuU	0.5–1	0–8	Silt loam	ML	A–4
		8–36	Silt loam	ML or CL	A–4 or A–6
		36–52	Silt loam	ML or CL	A–4 or A–6
		52–74	Silty clay	CH	A–7
Earle: Ea	<0.5	0–4	Clay	CH	A–7
		4–30	Clay	CH	A–7
		30–72	Loamy sand	SM	A–2
Forestdale: Fo	<0.5	0–11	Silty clay loam	CL or CH	A–7
		11–22	Silty clay	CH	A–7
		22–31	Silty clay loam	CL or CH	A–7
		31–48	Silt loam	ML or CL	A–4 or A–6
		48–70	Fine sandy loam	SM or ML	A–4
		70–84	Silt loam	ML or CL	A–4 or A–6
Jeanerette: Je	1–2	0–6	Silt loam	ML or CL	A–4 or A–6
		6–25	Silty clay loam	CL or CH	A–7
		25–38	Silt loam	ML or CL	A–4 or A–6
		38–44	Silty clay	CH	A–7
		44–68	Silt loam	ML or CL	A–4 or A–6
		68–76	Fine sandy loam	SM or ML	A–4
Mhoon: Mh	<0.5	0–11	Silt loam	ML or CL	A–4 or A–6
		11–22	Loam	ML	A–4
		22–34	Silty clay	CH	A–7
		34–51	Silt loam	ML or CL	A–4 or A–6
		51–70	Silty clay loam	CL or CH	A–7
		70–84	Silt loam	ML or CL	A–4 or A–6
Robinsonville: Rn, Ro	5–6	0–60	Very fine sandy loam	ML or SM	A–4
		60–72	Silt loam	ML or CL	A–4 or A–6

[1] 100 percent of material is smaller than 3 inches.

significant in engineering

symbol < means less than]

Percentage less than 3 inches in diameter passing sieve [1]—			Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
			Inches per hour	*Inches per inch of soil*	*pH*	
100	95–100	95–100	0.06–0.20	0.18–0.20	4.5–5.5	High.
100	95–100	95–100	<0.06	0.18–0.20	4.5–5.5	High.
100	95–100	95–100	<0.06	0.18–0 20	5.6–7.3	High.
100	95–100	85–95	0.20–0.63	0.21–0.23	5.6–7.3	Low.
100	90–100	25–40	>6.3	0.05–0.10	5.1–6.5	Low.
100	95–100	40–60	2.0–6.3	0.16–0.18	4.5–6.0	Low.
100	95–100	15–40	>6.3	0.05–0.10	4.5–6.0	Low.
100	95–100	95–100	0.06–0.20	0.18–0.20	6.1–7.8	High.
100	95–100	80–95	0.20–0.63	0.21–0.23	6.1–7.8	Low.
100	95–100	95–100	0.06–0.20	0.18–0.20	6.1–7.8	High.
100	95–100	90–100	0.63–2.0	0.21–0.23	6.1–7.8	Low.
100	95–100	95–100	0.20–0.63	0.20–0.22	6.1–7 8	Moderate.
100	95–100	95–100	0 20–0.63	0.21–0.23	6.1–7.8	Low.
100	95–100	95–100	0.20–0.63	0.20–0.22	6.1–7.8	Moderate.
100	65–95	5–20	>6.3	0.02–0.08	5.1–7.3	Low.
100	95–100	90–100	0.63–2.0	0.21–0.23	5.1–6.5	Low.
100	95–100	90–100	0.63–2.0	0.20–0.22	4.5–6.0	Moderate.
100	95–100	90–100	0.63–2.0	0.21–0.23	4.5–6.0	Low.
100	70–85	20–35	2.0–6.3	0.05–0.10	4.5–6.0	Low.
100	70–85	35–55	0.63–2.0	0.14–0.16	4.5–6.0	Low.
100	70–85	20–35	2.0–6.3	0.05–0.10	4.5–6.0	Low.
100	95–100	85–95	0.63–2.0	0.21–0.23	5.1–6.5	Low.
100	95–100	85–95	0.20–0.63	0.21–0.23	4.5–6.0	Low.
100	95–100	80–95	0.20–0.63	0.21–0.23	5.1–7.3	Low.
100	95–100	95–100	0.06–0.20	0.18–0.20	5.1–7.3	High.
100	95–100	95–100	<0.06	0.18–0.20	4.5–6.0	High.
100	95–100	95–100	<0.06	0.18–0.20	4.5–5.5	High.
100	15–25	15–25	>6.3	0.05–0.10	4.5–6.0	Low.
100	95–100	95–100	0.06–0.20	0.20–0.22	4.5–6.0	Moderate.
100	95–100	95–100	<0.06	0.18–0.20	4.5–6.0	High.
100	95–100	95–100	0.06–0.20	0.20–0.22	4.5–6.0	Moderate.
100	95–100	95–100	0.20–0.63	0.21–0.23	4.5–6.0	Low.
100	70–85	35–55	0.63–2.0	0.14–0.16	5.1–7.3	Low.
100	90–95	90–95	0.20–0.63	0.21–0.23	5.1–7.3	Low.
100	95–100	90–95	0.63–2.0	0.21–0.23	6.1–7.3	Low.
100	95–100	90–95	0.20–0.63	0.20–0.22	6.1–7.3	Moderate.
100	95–100	90–95	0.20–0.63	0.21–0.23	5.1–7.3	Low.
100	95–100	95–100	0.20–0.63	0.18–0.20	5.1–7.3	High.
100	95–100	90–95	0.20–0.63	0.21–0.23	5.1–7.3	Low.
100	70–85	35–55	0.63–2.0	0.14–0.16	5.1–7.3	Low.
100	95–100	85–95	0.63–2.0	0.21–0.23	6.1–8.4	Low.
100	95–100	80–95	0.63–2.0	0.16–0.18	6.1–8.4	Low.
100	95–100	95–100	0.06–0.20	0.18–0.20	6.1–8.4	High.
100	95–100	95–100	0.20–0.63	0.21–0.23	6.1–8.4	Low.
100	95–100	95–100	0.06–0.20	0.20–0.22	6.1–8.4	Moderate.
100	95–100	95–100	0.20–0.63	0.21–0.23	6.1–8.4	Low.
100	95–100	45–85	2.0–6.3	0.16–0.18	6.1–8.4	Low.
100	95–100	85–95	2.0–6.3	0.21–0.23	6.1–8.4	Low.

TABLE 7.—*Estimates of soil properties*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification		
			USDA texture	Unified	AASHO
	Feet	*Inches*			
Sharkey: ShA, ShU, Sk	<0.5	0–8	Silty clay	CH	A–7
		8–48	Clay	CH	A–7
		48–52	Silty clay loam	CL or CH	A–7
		52–76	Clay	CH	A–7
Tunica: TnA, TnU, Tu	<0.5	0–20	Clay	CH	A–7
		20–29	Silty clay	CH	A–7
		29–72	Sandy loam and sand	SM	A–2 or A–4

TABLE 8.—*Engineering*

Soil series and map symbols	Suitability as a source of—			Soil features affecting—	
	Topsoil	Sand	Road fill	Highway location	Winter grading
Alligator: AlA, AlU.	Poor: plastic clayey material; poorly drained.	Poor: improbable source.	Poor: low traffic-supporting capacity; high shrink-swell potential; poorly drained.	Seasonal high water table; low traffic-supporting capacity; high shrink-swell potential.	Poorly drained; plastic clayey material; seasonal high water table.
Beulah: Be	Good to fair: surface layer is sand in many areas.	Fair: excessive fines; poorly graded.	Good	High to moderate traffic-supporting capacity.	Soil features generally favorable.
Borrow pits: Bp. Too variable to rate. Requires onsite determination.					
Bowdre: BrA, BrU, Bw.	Poor: plastic clayey material in upper 17 inches.	Poor: unsuitable in clayey upper 17 inches; fair to unsuitable below; variable loamy material to a depth of 5 feet.	Poor in upper 17 inches: low traffic-supporting capacity; high shrink-swell potential.	Low traffic-supporting capacity; high shrink-swell potential; seasonal high water table; frequent flooding in some areas.	Seasonal high water table; plastic clayey material in upper 17 inches; frequent flooding in some areas.
Commerce: Cm, Co.	Fair: underlying material is stratified silty clay loam and silt loam; somewhat poorly drained.	Poor: improbable source.	Fair: moderate to low traffic-supporting capacity; somewhat poorly drained.	Moderate to low traffic-supporting capacity; seasonal high water table; frequent flooding in some areas.	Somewhat poorly drained; seasonal high water table; plastic material in some layers; frequent flooding in some areas.

significant in engineering—Continued

Percentage less than 3 inches in diameter passing sieve [1]—			Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
			Inches per hour	*Inches per inch of soil*	*pH*	
100	95–100	95–100	0.06–0.20	0.18–0.20	6.1–7.8	High.
100	95–100	95–100	<0.06	0.18–0.20	6.1–7.8	High.
100	95–100	95–100	0.06–0.20	0.20–0.22	6.1–7.8	Moderate.
100	95–100	95–100	<0.06	0.18–0.20	6.1–7.8	High.
100	95–100	95–100	<0.06	0.18–0.20	6.1–7.8	High.
100	90–100	90–100	<0.06	0.18–0.20	6.1–7.8	High.
100	75–85	15–40	2.0–6.3	0.05–0.12	6.1–7.8	Low.

interpretations

Soil features affecting—Continued				
Dikes and levees	Farm ponds and reservoirs—		Agricultural drainage	Irrigation
	Areas	Embankments		
Fair to poor slope stability; high compressibility; high shrink-swell potential.	Soil features generally favorable.	Fair to poor slope stability; high compressibility.	Poorly drained; very slow permeability; seasonal high water table.	Rapid intake rate when dry and cracked, otherwise, slow intake rate; high available water capacity; gently undulating in some areas.
Fair slope stability; moderate permeability; poor resistance to piping and erosion.	Moderately rapid permeability.	Fair slope stability; moderate permeability; poor resistance to piping and erosion.	Somewhat excessively drained.	Rapid intake rate; moderate to low available water capacity; gently undulating in some areas.
Fair slope stability; low to moderate permeability; high to medium compressibility; good to fair resistance to piping and erosion; high shrink-swell potential.	Soil features generally favorable.	Fair slope stability; low to moderate permeability; high to medium compressibility; good to fair resistance to piping and erosion.	Somewhat poorly drained; slow permeability; seasonal high water table; material below 17 inches tends to slough.	Rapid intake rate when dry and cracked, otherwise, slow intake rate; high available water capacity; gently undulating in some areas.
Fair slope stability; medium to high compressibility; poor to fair resistance to piping and erosion.	Moderately slow permeability.	Fair slope stability; medium to high compressibility; poor to fair resistance to piping and erosion.	Somewhat poorly drained; moderately slow permeability; seasonal high water table.	Slow intake rate; high available water capacity.

TABLE 8.—*Engineering*

Soil series and map symbols	Suitability as a source of—			Soil features affecting—	
	Topsoil	Sand	Road fill	Highway location	Winter grading
Crevasse: Cr, Cs	Poor: sandy material.	Good to fair: poorly graded; excessive fines in some layers.	Good	Soil features generally favorable; frequent flooding in some areas.	Soil features generally favorable.
Dubbs: DsA, DsU.	Fair: moderately plastic at a depth of 4 to 8 inches.	Fair to poor below a depth of 45 inches; excessive fines; poorly graded.	Fair in upper 45 inches; fair to good below; moderate to high traffic-supporting capacity.	Moderate traffic-supporting capacity; seasonal water table within 3 feet of surface.	Well drained; seasonal water table within 3 feet of surface.
Dundee: DuA, DuU.	Fair: somewhat poorly drained.	Poor: improbable source.	Fair: moderate traffic-supporting capacity; somewhat poorly drained.	Moderate traffic-supporting capacity; seasonal high water table.	Somewhat poorly drained; seasonal high water table.
Earle: Ea	Poor: plastic clayey material.	Poor: unsuitable in clayey upper 30 inches; fair below; sandy and loamy material; poorly graded; excessive fines.	Poor: low traffic-supporting capacity; high shrink-swell potential.	Low traffic-supporting capacity; high shrink-swell potential; seasonal high water table.	Somewhat poorly drained; seasonal high water table; plastic clayey material.
Forestdale: Fo	Poor: poorly drained; plastic clayey material.	Poor: improbable source.	Poor: low traffic-supporting capacity; high shrink-swell potential; poorly drained.	Low traffic-supporting capacity; high shrink-swell potential; seasonal high table.	Poorly drained; seasonal high water table; plastic clayey material.
Joanerette: Je	Poor: poorly drained.	Poor: improbable source.	Poor: poorly drained; moderate to low traffic-supporting capacity.	Moderate to low traffic-supporting capacity; seasonal high water table.	Poorly drained; seasonal high water table; plastic material in some layers.
Mhoon: Mh	Poor: poorly drained.	Poor: improbable source.	Poor: poorly drained; moderate to low traffic-supporting capacity.	Moderate to low traffic-supporting capacity; seasonal high water table.	Poorly drained; seasonal high water table; plastic material in some layers.

interpretations—Continued

Soil features affecting—Continued				
Dikes and levees	Farm ponds and reservoirs—		Agricultural drainage	Irrigation
	Areas	Embankments		
Fair to poor slope stability; medium to high permeability; poor resistance to piping and erosion.	Rapid permeability	Fair to poor slope stability; medium to high permeability; poor resistance to piping and erosion.	Excessively drained soil	Rapid intake rate; low available water capacity.
Fair to good slope stability; low to moderate permeability; medium compressibility; poor to fair resistance to piping and erosion.	Moderate permeability; moderate permeability to moderately rapid permeability below a depth of 45 inches.	Fair to good slope stability; low to moderate permeability; medium compressibility; poor to fair resistance to piping and erosion.	Well-drained soil	Moderate intake rate; high available water capacity; gently undulating in some areas.
Fair to good slope stability; medium compressibility; poor to fair resistance to piping and erosion.	Moderately slow permeability.	Fair to good slope stability; medium compressibility; poor to fair resistance to piping and erosion.	Somewhat poorly drained; seasonal high water table.	Moderate intake rate; high available water capacity; gently undulating in some areas.
Fair to good slope stability; medium to high compressibility; fair to good resistance to piping and erosion; high shrink-swell potential.	Rapid permeability at a depth below 30 inches.	Fair to good slope stability; medium to high compressibility; fair to good resistance to piping and erosion.	Somewhat poorly drained; very slow permeability; seasonal high water table; material below a depth of 30 inches will slough.	Rapid intake rate when dry and cracked, otherwise slow intake rate; high available water capacity; gently undulating in some areas.
Fair to poor slope stability; high compressibility; high shrink-swell potential.	Soil features generally favorable.	Fair to poor slope stability; high compressibility.	Poorly drained; very slow permeability; seasonal high water table.	Rapid intake rate when dry and cracked, otherwise slow intake rate; high available water capacity.
Fair slope stability; medium to high compressibility; fair resistance to piping and erosion.	Moderately slow permeability.	Fair slope stability; medium to high compressibility; fair resistance to piping and erosion.	Poorly drained; moderately slow permeability; seasonal high water table.	Moderate intake rate; high available water capacity.
Fair to poor slope stability; medium to high compressibility; fair to poor resistance to piping and erosion.	Slow permeability	Fair to poor slope stability; medium to high compressibility; fair to poor resistance to piping and erosion.	Poorly drained; slow permeability; seasonal high water table.	Moderate intake rate; high available water capacity.

TABLE 8.—*Engineering*

Soil series and map symbols	Suitability as a source of—			Soil features affecting—	
	Topsoil	Sand	Road fill	Highway location	Winter grading
Robinsonville: Rn, Ro.	Good	Poor: improbable source in most areas; fair in some areas at a depth below 45 inches; excessive fines; poorly graded.	Fair: moderate traffic-supporting capacity.	Moderate traffic-supporting capacity; frequent flooding in some areas.	Soil features generally favorable; frequent flooding in some areas.
Sharkey: ShA, ShU, Sk.	Poor: plastic clayey material; poorly drained.	Poor: improbable source.	Poor: low traffic-supporting capacity; high shrink-swell potential; poorly drained.	Low traffic-supporting capacity; seasonal high water table; high shrink-swell potential; frequent flooding in some areas.	Poorly drained; plastic clayey material; seasonal high water table; frequent flooding in some areas.
Tunica: TnA, TnU, Tu.	Poor: plastic clayey material; poorly drained.	Poor: unsuitable clayey material in upper 29 inches; fair below; sandy and loamy material; excessive fines; poorly graded.	Poor: low traffic-supporting capacity; high shrink-swell potential; poorly drained.	Low traffic-supporting capacity; seasonal high water table; high shrink-swell potential; frequent flooding in some areas.	Poorly drained; plastic clayey material; seasonal high water table; frequent flooding in some areas.

TABLE 9.—*Degree and kind of limitation*

Soil series and map symbols	Dwellings	Septic tank filter fields	Sewage lagoons
Alligator: AlA, AlU	Severe: high shrink swell potential; low bearing strength; poorly drained; seasonal high water table.	Severe: very slow permeability; seasonal high water table.	Slight to moderate: slopes 2 to 3 percent in some undulating areas; fair reservoir site material.
Beulah: Be	Slight	Slight	Severe: moderately rapid permeability; poor reservoir site material.
Borrow pits: Bp	Severe: variable materials; subject to frequent flooding and ponded water.	Severe: variable materials; subject to frequent flooding and ponded water.	Severe: variable materials; subject to frequent flooding and ponded water.
Bowdre: BrA, BrU, Bw	Severe: low bearing strength; high shrink-swell potential; seasonal high water table; unit Bw subject to frequent flooding.	Severe: slow permeability; seasonal high water table; unit Bw subject to frequent flooding.	Slight to moderate: slopes 2 to 3 percent in some undulating areas; fair to good reservoir site material; severe on unit Bw; subject to frequent flooding.
Commerce: Cm, Co	Severe: seasonal high water table; somewhat poorly drained; moderate bearing strength; unit Co subject to frequent flooding.	Severe: moderately slow permeability; seasonal high water table; unit Co subject to frequent flooding.	Moderate: fair reservoir site material; severe for unit Co; subject to frequent flooding.

interpretations—Continued

Soil features affecting—Continued				
Dikes and levees	Farm ponds and reservoirs—		Agricultural drainage	Irrigation
	Areas	Embankments		
Fair slope stability; medium compressibility; poor to fair resistance to piping and erosion.	Moderately rapid permeability.	Fair slope stability; medium compressibility; poor to fair resistance to piping and erosion.	Well-drained soil	Moderate intake rate; moderate to high available water capacity.
Poor to fair slope stability; high compressibility; high shrink-swell potential.	Soil features generally favorable.	Poor to fair slope stability; high compressibility.	Poorly drained; very slow permeability; seasonal high water table; frequent flooding in some areas.	Rapid intake rate when dry and cracked, otherwise slow intake rate; high available water capacity; gently undulating in some areas.
Poor to fair slope stability; high compressibility; high shrink-swell potential.	Moderately rapid permeability at a depth below 29 inches.	Poor to fair slope stability; high compressibility.	Poorly drained; very slow permeability; seasonal high water table; frequent flooding in some areas.	Rapid intake rate when dry and cracked, otherwise slow intake rate; high available water capacity; gently undulating in some areas.

for town and country planning

Structures for light industry	Recreation		
	Campsites	Picnic areas	Intensive play areas
Severe: poorly drained; high shrink-swell potential; low bearing strength; seasonal high water table.	Severe: poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer.	Severe: poorly drained; seasonal high water table; poor trafficability because of clayey surface layer.	Severe: poorly drained; seasonal high water table; very slow permeability; poor trafficability due to clayey surface layer.
Slight	Slight to moderate: moderate trafficability in areas with sandy surface layer.	Slight to moderate: moderate trafficability in areas that have a sandy surface layer.	Slight to moderate: moderate trafficability in areas with sandy surface layer.
Severe: variable materials; subject to frequent flooding and ponded water.	Severe: variable materials; subject to frequent flooding and ponded water.	Severe: variable materials; subject to frequent flooding and ponded water.	Severe: variable materials; subject to frequent flooding and ponded water.
Severe: somewhat poorly drained; seasonal high water table; high shrink-swell potential; low bearing strength; unit Bw subject to frequent flooding.	Severe: somewhat poorly drained; seasonal high water table; poor trafficability because of clayey surface layer; unit Bw subject to frequent flooding.	Severe: poor trafficability because of clayey surface layer.	Severe: somewhat poorly drained; seasonal high water table; poor trafficability because of clayey surface; unit Bw subject to frequent flooding.
Severe: somewhat poorly drained; seasonal high water table; moderate bearing strength; unit Co subject to frequent flooding.	Moderate: somewhat poorly drained; moderately slow permeability; severe for unit Co; subject to frequent flooding.	Moderate: somewhat poorly drained; unit Co subject to frequent flooding.	Severe: somewhat poorly drained; seasonal high water table; unit Co subject to frequent flooding.

TABLE 9.—*Degree and kind of limitation*

Soil series and map symbols	Dwellings	Septic tank filter fields	Sewage lagoons
Crevasse: Cr, Cs	Moderate: low available water capacity; difficult to maintain lawns and shrubs; poor trafficability; severe for unit Cs; subject to frequent flooding.	Slight: severe if likely to contaminate ground water; severe for unit Cs; subject to frequent flooding.	Severe: rapid permeability; poor reservoir site material.
Dubbs: DsA, DsU	Slight	Moderate: moderate permeability; moderately high seasonal water table.	Moderate: moderate permeability; fair reservoir site material.
Dundee: DuA, DuU	Severe: somewhat poorly drained; seasonal high water table; moderate bearing strength.	Severe: moderately slow permeability; seasonal high water table.	Moderate: fair reservoir site material.
Earle: Ea	Severe: somewhat poorly drained; low bearing strength; high shrink-swell potential; seasonal high water table.	Severe: very slow permeability; seasonal high water table.	Slight
Forestdale: Fo	Severe: poorly drained; low bearing strength; high shrink-swell potential; seasonal high water table.	Severe: very slow permeability; seasonal high water table.	Slight
Jeanerette: Je	Severe: poorly drained; seasonal high water table; moderate bearing strength.	Severe: moderately slow permeability; seasonal high water table.	Slight to moderate: fair reservoir site material.
Mhoon: Mh	Severe: poorly drained; seasonal high water table; moderate bearing strength.	Severe: slow permeability; seasonal high water table.	Slight to moderate: fair reservoir site material.
Robinsonville: Rn, Ro	Slight to moderate: moderate bearing strength; severe for unit Ro; subject to frequent flooding.	Slight: severe for unit Ro; subject to frequent flooding.	Severe: moderately rapid permeability; unit Ro subject to flooding.
Sharkey: ShA, ShU, Sk	Severe: poorly drained; seasonal high water table; high shrink-swell potential; low bearing strength; unit Sk subject to frequent flooding.	Severe: very slow permeability; seasonal high water table; unit Sk subject to frequent flooding.	Slight to moderate: slopes are 2 to 3 percent in some undulating areas; fair reservoir site material; severe for unit Sk; subject to frequent flooding.
Tunica: TnA, TnU, Tu	Severe: poorly drained; seasonal high water table; high shrink-swell potential; low bearing strength; unit Tu subject to frequent flooding.	Severe: very slow permeability; seasonal high water table; unit Tu subject to frequent flooding.	Slight to moderate: slopes are 2 to 3 percent in some undulating areas; fair reservoir site material; severe for unit Tu; subject to frequent flooding.

for town and country planning—Continued

Structures for light industry	Recreation		
	Campsites	Picnic areas	Intensive play areas
Slight: severe for unit Cs; subject to frequent flooding.	Severe: poor trafficability because of loose sandy surface layer; low available water capacity; difficult to maintain plant cover; unit Cs subject to frequent flooding.	Severe: poor trafficability because of loose sandy surface layer; low available water capacity; difficult to maintain plant cover; unit Cs subject to frequent flooding.	Severe: poor trafficability because of loose sandy surface layer; low available water capacity; difficult to maintain plant cover; unit Cs subject to frequent flooding.
Slight	Slight	Slight	Slight.
Severe: somewhat poorly drained; seasonal high water table; moderate bearing strength.	Moderate: somewhat poorly drained; seasonal high water table.	Moderate: somewhat poorly drained; seasonal high water table.	Severe: somewhat poorly drained; seasonal high water table.
Severe: somewhat poorly drained; low bearing strength; high shrink-swell potential.	Severe: somewhat poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer.	Severe: somewhat poorly drained; seasonal high water table; poor trafficability because of clayey surface layer.	Severe: somewhat poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer.
Severe: poorly drained; seasonal high water table; low bearing strength; high shrink-swell potential.	Severe: poorly drained; seasonal high water table; very slow permeability.	Severe: poorly drained; seasonal high water table.	Severe: poorly drained; seasonal high water table; very slow permeability.
Severe: poorly drained; seasonal high water table; moderate bearing strength.	Severe: poorly drained; seasonal high water table.	Severe: poorly drained; seasonal high water table.	Severe: poorly drained; seasonal high water table.
Severe: poorly drained; seasonal high water table; moderate bearing strength.	Severe: poorly drained; seasonal high water table.	Severe: poorly drained; seasonal high water table.	Severe: poorly drained; seasonal high water table.
Moderate: moderate bearing strength; severe for unit Ro; subject to frequent flooding.	Slight: severe for unit Ro; subject to frequent flooding.	Slight	Slight: severe for unit Ro; subject to frequent flooding.
Severe: poorly drained; high shrink-swell potential; seasonal high water table; low bearing strength; unit Sk subject to frequent flooding.	Severe: poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer; unit Sk subject to frequent flooding.	Severe: poorly drained; seasonal high water table; poor trafficability because of clayey surface layer; unit Sk subject to frequent flooding.	Severe: poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer; unit Sk subject to frequent flooding.
Severe: poorly drained; high shrink-swell potential; seasonal high water table; low bearing strength; unit Tu subject to frequent flooding.	Severe: poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer; unit Tu subject to frequent flooding.	Severe: poorly drained; seasonal high water table; poor trafficability because of clayey surface layer; unit Tu subject to frequent flooding.	Severe: poorly drained; seasonal high water table; very slow permeability; poor trafficability because of clayey surface layer; unit Tu subject to frequent flooding.

In the column headed "Dwellings," foundation and site requirements are considered for homes of 3 stories or less without basements. Properties considered are natural drainage, depth to the water table, flood hazard, shrink-swell potential, bearing strength, and suitability for grasses, shrubs, and trees (fig. 10). Ratings of bearing strength are based on estimates of the maximum load that a soil can support when compacted. Specific values should not be applied to the rating of bearing strength in this table. Shrink-swell potential refers to expansion and contraction of a soil with changes in moisture content.

Septic tank filter fields are soil areas used for absorption of sewage effluent. Properties considered are permeability, percolation rate, depth to the water table, and flood hazard. A seasonal water table less than 4 feet below the surface constitutes a moderate to severe limitation for this use. A percolation rate slower than 75 minutes per inch, or permeability slower than 0.63 inch per hour, constitutes a severe limitation; and a percolation rate between 45 and 75 minutes per inch, or permeability between 0.63 and 1 inch per hour, a moderate limitation.

Sewage lagoons are shallow lakes used to hold sewage during bacterial decomposition. Properties considered are permeability, slope, and the suitability of the reservoir site material for building embankments.

Structures for light industry are those that have less than 3 stories. Important properties are bearing strength, shrink-swell potential, depth to the water table, flood hazard, natural drainage, and topography.

Recreation facilities are soil areas used for camping and picnicking or for intensive play areas. Trafficability, productivity, natural drainage, flood hazard, permeability, and topography are important properties. Trafficability is related to the texture of the surface layer and refers to movement of pedestrian, bicycle, and light vehicular traffic. Trafficability is no more than a slight limitation on loamy soils that are not likely to be flooded and have a water table at a depth of 30 inches or more during the season of heavy use. On sandy soils, trafficability is a moderate to severe limitation.

The detailed soil map and the information in table 9 are guides for evaluating areas for the specific uses, but detailed onsite investigation is needed for final evaluation, because as much as 15 percent of an area designated on the map as a specific soil may contain spots of other soils.

Formation and Classification of the Soils

This section describes the major factors of soil formation, tells how these factors have affected the soils of Crittenden County, explains some of the principal processes of soil formation, defines the current system of soil classification, and classifies the soils according to that system. This section also shows the results of analysis of selected soils in the county. The soil series represented in the county and a profile representative of each series are described in the section "Descriptions of the Soils."

Factors of Soil Formation

The characteristics of a soil at any given point depend on climate, living organisms, parent material, relief, and time (*11*). Each factor acts on the soil and modifies the effect of the other four.

Climate and living organisms are the active forces in soil formation. Relief modifies the effects of climate and living organisms, mainly by its influence on temperature and runoff. Because climate, vegetation, parent material, and relief interact over a period of time, time is the fifth factor of soil formation. The effect of time is also reflected in the soil characteristics.

The interaction of the five factors of soil formation is more complex for some soils than for others. For example, in places where the environment has changed, the characteristics of a young soil have been superimposed on those of an older soil. The five factors are described in the following paragraphs.

Climate

The climate in Crittenden County is characterized by mild winters, hot summers, and generally abundant rainfall. The normally warm temperature and high precipitation probably are similar to the climate under which the soils in the county formed. The average daily maximum temperature at nearby Memphis, Tenn., in July is 91.1°F., and the average in January is 50.6°. The total annual rainfall is about 50 inches, about 51 percent of which falls during the period December through April. For additional information about the climate, refer to the section "General Nature of the County."

The warm, moist climate promotes rapid soil formation, and the warm temperature encourages rapid chemical reaction. The large amount of water that moves through the soil removes dissolved or suspended materials. Because remains of plants decompose rapidly, the organic acids thus formed hasten the formation of clay minerals and the removal of carbonates. Because the soil is frozen for only short periods, soil formation continues almost the year round. The climate throughout the county is uniform, though its effect is modified locally by runoff. Climate alone does not account for differences in the soils of the county.

Living organisms

The higher plants and animals, as well as insects, bacteria, and fungi, are important in the formation of soils. Among the changes they cause are gains in organic matter and nitrogen in the soil, gains or losses in plant nutrients, and changes in structure and porosity.

Before Crittenden County was settled, the native vegetation had more influence on soil formation than did animal activity. Hardwood forest, broken by swamps of baldcypress and a few canebrakes, covered the county. Dense stands of baldcypress and water tupelo filled the swampy areas where some of the Sharkey soils formed, whereas, hardwoods less tolerant of water covered areas where most of the Beulah, Bowdre, Commerce, Crevasse, Dubbs, Dundee, and Robinsonville soils formed. Some of the wetter soils, such as Forestdale and Mhoon soils, also formed under hardwoods. The trees growing at the higher elevations were chiefly hickory, pecan, white oak,

Figure 10.—**Suburban expansion onto cropland on Sharkey silty clay, 0 to 1 percent slopes. This soil has severe limitations for dwellings, septic tank filter fields, and streets.**

red oak, blackgum, and winged elm. In the swales and low places that were wet but not swampy, the trees were chiefly sweetgum, soft elm, green ash, hackberry, cottonwood, overcup oak, swamp chestnut oak, water oak, willow oak, and water tupelo. Alligator, Earle, Jeanerette, Sharkey, and Tunica soils formed in these low, wet areas.

These differences in native vegetation seem to have been related mainly to variations in drainage. Only the major differences in the original vegetation are reflected to any extent by the characteristics of the soils.

Man is important to the future rate and direction of soil formation. He clears the forest, cultivates the soils, and introduces new kinds of plants. He adds fertilizer and lime and chemicals for insect, disease, and weed control. Building levees for flood control and improving drainage also affect the future development of soils. Some results of these changes will not be evident for many centuries. Nevertheless, the complex of living organisms affecting soil formation in this county has been drastically changed because of man.

Parent material

The soils of Crittenden County are derived from parent material deposited during recent geological time. The material was deposited by the Mississippi and Ohio Rivers and, in part, reworked by local tributaries of the Mississippi River (*5*).

The alluvium in the lower parts of the Mississippi Valley is a mixture of material washed from the many kinds of soils, rocks, and unconsolidated sediments in about 24 States (*16*). Because it comes from the wide areas of the basin of the upper Mississippi River, the alluvium is mixed. In the upper basin, which extends from Montana to Pennsylvania, sedimentary rocks of various kinds are widespread. Other kinds of rocks also are exposed in many places and serve as sources of sediment. Large areas in the upper basin are mantled by glacial drift and loess. Consequently, the alluvium consists of many kinds of minerals, most of which are but slightly weathered.

The wide ranges in texture of the alluvium in Crittenden County result from differences in the site of deposition. When a river overflows and spreads over the flood plain, the coarse sediments are dropped first; therefore, sandy and loamy sediments are deposited in bands along the channel. Thus, low ridges known as natural levees are formed (*16*). The Beulah, Crevasse, Dubbs, and Robinsonville soils formed on the higher parts of these ridges. Finer sediments that are high in content of silt but contain some sand and clay are laid down on the lower parts of natural levees as the floodwaters spread and lose velocity. The Commerce, Dundee, Jeanerette, and Mhoon soils formed in these sediments. Where water is left standing as shallow lakes or swamps, the

489-755—74——6

clays and finer silts settle. The Alligator, Bowdre, Earle, Forestdale, Sharkey, and Tunica soils formed in these sediments.

This simple pattern of sediment distribution is not common along the Mississippi River, because through the centuries, the river channel has meandered back and forth across the flood plain. Sometimes the channel has cut out all or parts of natural levees, and at other times it has deposited sandy or loamy sediments on top of slack-water clay, or slack-water clay on top of sandy or loamy sediments. The normal pattern of sediment distribution from a single channel has been severely truncated in many places, and more recent beds of alluvium have been superimposed. The Bowdre, Earle, and Tunica are examples of soils that formed in these kinds of materials. The Bowdre soils formed in thin beds of clayey sediments over coarser sediments, and the Earle and Tunica soils formed in somewhat thicker beds of clayey sediments over coarser sediments.

A great many combinations of kinds of sediments now occur on the flood plain. In many places parts of former river channels form oxbow lakes or swamps and sandy and loamy natural levees. These are level and gently undulating areas consisting of loamy sediments that gradually merge with large areas of slack-water clay. Generally, the areas of slack-water clay have been fairly stable, because they are farther from the meander belt of the river.

Some natural levees along abandoned channels have received no deposition of fresh sediments and have been in place long enough to undergo significant leaching of cations and some translocation of clay. Originally, the sediments were stratified and mostly neutral to alkaline and calcareous, as are the recently deposited sediments along the present course of the Mississippi River. Beulah, Dubbs, Dundee, and other soils that formed on old natural levees are predominantly very strongly acid to medium acid. Their subsoil, except for Beulah soils, has accumulated clay eluviated from upper horizons. In the older slack-water areas, such soils as the clayey Alligator and Earle soils are now predominantly very strongly acid to strongly acid, even though they were originally neutral to alkaline and calcareous.

Differences in texture of the alluvium are accompanied by some differences in chemical and mineralogical composition. The sandier sediments normally contain more quartz and less feldspars than do sediments of intermediate or finer texture. Commonly, they also are lower in carbonates.

Relief

Relief is the inequality in elevation, brought about in this county by entrenchment of the drainage channels into the land surface. The other soil-forming factors are affected by relief through its effect on drainage, runoff, erosion, and percolation of water through the soil.

The relief of Crittenden County ranges from broad flats to areas of alternating swales and low ridges. Local differences in elevation are predominantly less than 1 foot, but range up to 4 or 5 feet in the areas of swales and low ridges. In a few areas along streambanks, differences are as much as 15 to 20 feet, but the total area of this greater relief is negligible. The highest elevation in the county, about 230 feet above sea level, is in the northeastern part. The lowest elevation, about 165 feet above sea level, is in the southern part on river sandbars.

Time

The length of time required for soil formation depends largely on the other factors of soil formation. Usually, less time is required if the climate is warm and humid and the vegetation luxuriant. If other factors are equal, less time is also required if the parent material is coarse textured than if it is fine textured.

In terms of geological time, the soils in Crittenden County are young. Large areas still receive fresh deposits of sediments at frequent intervals, and the soils in these areas are recharged with cations by floods or by seep water. Robinsonville and Commerce soils formed on the loamy natural levees of these areas. They lack evidence of translocated clay, and some lack B horizons. Dubbs and Dundee soils formed on the older loamy natural levees. These soils have been in place long enough to have been significantly leached. Thus, the Dubbs and Dundee soils are more acid and have lower base saturation than Robinsonville and Commerce soils, and have formed argillic horizons, which the Robinsonville and Commerce soils lack.

It seems probable that all the sediments now forming the surface of the county were deposited during and after the advance of the continental glaciers. The last of these glaciers retreated from the North Central States about 11,000 years ago (*7*, *8*).

Processes of Soil Formation

The marks that the soil forming factors leave on the soil are recorded in the soil profile, which is a succession of layers, or horizons, from the surface to the parent rock. The horizons differ in one or more properties, such as color, texture, structure, consistence, porosity, and reaction.

Most soil profiles contain three major horizons, called A, B, and C. Very young soils do not have a B horizon.

The A horizon can be the horizon of maximum accumulation of organic matter, called the A1 horizon, or the surface layer; or it can be the horizon of maximum leaching of dissolved or suspended material, called the A2 horizon, or the subsurface layer.

The B horizon lies immediately beneath the A horizon and is sometimes called the subsoil. It is a horizon of maximum accumulation of dissolved or suspended material, such as iron and clay. Commonly, the B horizon has blocky structure (*15*) and is firmer than the horizons immediately above and below it.

Beneath the B horizon is the C horizon, which has been little affected by the soil-forming processes, but the C horizon can be materially modified by weathering. In some young soils, the C horizon immediately underlies the A horizon and has been slightly modified by living organisms, as well as by weathering.

Several processes have been active in the formation of soil horizons in the soils of Crittenden County. Among these processes are (1) the accumulation of organic matter, (2) the leaching of calcium carbonate and bases, (3) the reduction and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most of the soils of the county, more than one of these processes has been active in soil formation.

Accumulation of organic matter in the upper part of the profile to form an A1 horizon has been an important process of soil formation. The soils of Crittenden County range from high to low in content of organic matter.

Leaching of carbonates and bases has occurred to some degree in nearly all the soils of the county. Among soil scientists, it is generally accepted that bases are leached downward in soils before silicate clay minerals begin to move. Most of the soils in the county are moderately leached.

Reduction and transfer of iron have occurred to a significant degree in the somewhat poorly drained and poorly drained soils of the county. In the naturally wet soils, this process is called gleying. Gray colors in the layers below the surface indicate the reduction and loss of iron. Some horizons contain reddish or yellowish mottles and concretions derived from segregated iron. Gleying is most pronounced in the Alligator, Forestdale, Mhoon, Sharkey, and Tunica soils.

In several soils of Crittenden County, the translocation of clay minerals has contributed to horizon development. In most places the eluviated A2 horizon has been destroyed by cultivation, but in areas where an A2 horizon occurs, its structure is blocky to platy, clay content is less than in the lower horizons, and the soil is lighter in color. Generally, clay films have accumulated in pores and on ped surfaces in the B horizon. The soils were probably leached of carbonates and soluble salts to a great extent before translocation of silicate clay occurred, even though the content of bases is still high in all soils of the county.

Leaching of bases and translocation of silicate clay are among the most important processes in horizon differentiation in the soils of Crittenden County.

Classification of the Soils

Soils are classified so that we can more easily remember their significant characteristics. Classification enables us to assemble knowledge about the soils, to see their relationship to one another and to the whole environment, and to develop principles that help us to understand their behavior and their response to manipulation. First through classification, and then through the use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

Through classification, soils are placed in narrow categories that are used in detailed soil surveys so that knowledge about the soils can be organized and used in managing farms, fields, and woodland; in developing rural areas; in engineering work; and in many other ways. They are placed in broad classes to facilitate study and comparison in larger areas, such as regions, countries, and continents.

Two systems of classifying soils above the series level have been used in the United States in recent years. The older system was adopted in 1938 (*2*) and revised later (*10*). The system currently used by the National Cooperative Soil Survey was adopted in the early sixties (*13*) and is under continual study (*9*).

The current system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the criteria used as a basis for classification are properties that are observable or measurable. The properties are chosen, however, so that the soils of similar genesis, or mode of origin, are grouped. Placement of some series in the current system of classification, particularly in families, may change as more precise information becomes available. In table 10, the soil series of Crittenden County are classified according to the current system. Categories of the current system are briefly defined in the following paragraphs.

ORDER.—Ten soil orders are recognized in the current system. They are Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The properties used to differentiate the soil orders are those that tend to give broad climatic groups of soils. Two exceptions, the Entisols and Histosols, occur in many different climates.

As shown in table 10, four soil orders are represented in Crittenden County—Entisols, Inceptisols, Mollisols, and Alfisols.

TABLE 10.—*Soil series classified according to the higher categories of the current system*

Series	Family	Subgroup	Order
Alligator	Very-fine, montmorillonitic, acid, thermic	Vertic Haplaquepts	Inceptisols.
Beulah	Coarse-loamy, mixed, thermic	Typic Dystrochrepts	Inceptisols.
Bowdre	Clayey over loamy, mixed, thermic	Fluvaquentic Hapludolls	Mollisols.
Commerce	Fine-silty, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Crevasse	Mixed, thermic	Typic Udipsamments	Entisols.
Dubbs	Fine-silty, mixed, thermic	Typic Hapludalfs	Alfisols.
Dundee [1]	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Earle	Clayey over loamy, montmorillonitic, acid, thermic	Vertic Haplaquepts	Inceptisols.
Forestdale	Fine, montmorillonitic, thermic	Typic Ochraqualfs	Alfisols.
Jeanerette [2]	Fine-silty, mixed, thermic	Typic Argiaquolls	Mollisols.
Mhoon	Fine-silty, mixed, nonacid, thermic	Typic Fluvaquents	Entisols.
Robinsonville	Coarse-loamy, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Sharkey	Very-fine, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.
Tunica [3]	Clayey over loamy, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.

[1] Dundee soils in this survey are taxadjuncts to the series because they have slightly less clay and weaker structural development than are defined in the range for the series.

[2] Jeanerette soils in this survey are taxadjuncts to the series because they are more acid than is defined in the range for the series, and they lack the calcium-carbonate concretions in the lower B and the C horizons.

[3] Tunica soils in this survey are taxadjuncts to the series because they lack the abrupt textural change between the B3g and the IIC1 horizons that is defined in the range for the series.

Entisols are young mineral soils that do not have genetic horizons or have only the beginning of such horizons.

Inceptisols are mineral soils that generally occur on young, but not recent, land surfaces. Horizons have definitely started to form in these soils.

Mollisols are friable soils that have a mollic epipedon, a diagnostic horizon that is a thick, dark-colored layer at the surface. This layer is much like a surface layer that forms under grass. It has moderate or strong structure, and it has base saturation of 50 percent or more. Mollisols are dominantly saturated with bivalent cations and have argillic or cambic horizons. Argillic or cambic horizons are diagnostic horizons that form below the soil surface. An argillic horizon is one in which illuvial silicate clay has accumulated. This horizon is called a natric horizon if it contains an appreciable amount of exchangeable sodium and has prismatic or columnar structure. A cambic horizon is a layer in which changes have been sufficient to give rise to soil structure, liberate iron, form silicate clay minerals, obliterate most evidence of original rock structure, or some combination of these.

Alfisols are soils that have argillic or natric horizons containing accumulated iron and aluminum. Alfisols have a base saturation of more than 35 percent.

SUBORDER.—Each order is divided into suborders, primarily on the basis of those characteristics that seem to produce classes that have the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the orders. Soil properties used to separate suborders mainly reflect either the presence or absence of water-logging or soil differences resulting from the climate or vegetation.

GREAT GROUP.—Each suborder is divided into great groups on the basis of uniformity in kind and sequence of major soil horizons and features. The horizons considered are those in which clay, iron, or humus has accumulated, or those that have restrictive layers that interfere with growth of roots or movement of water. Among the features considered are the self-mulching properties of certain clays, soil temperature, and major differences in chemical composition, mainly the content of calcium, magnesium, sodium, and potassium. The great group is not shown separately in table 10 because it is indicated in the name of the subgroup.

SUBGROUP.—Each great group is divided into subgroups, one representing the central (typic) segment of the group, and others, called intergrades, that have properties of the group and also one or more properties of another great group, suborder, or order. Divisions into subgroups are also made if the soil properties intergrade outside the range of any other great group, suborder, or order.

FAMILY.—Families are established within a subgroup primarily on the basis of properties important to the

TABLE 11.—*Physical and*

[Analyses made by the University of Arkansas, Fayetteville, Ark.

Soil and sample number	Depth from surface	Horizon	USDA texture	Particle-size distribution			
				Very coarse through medium sand (2.0–0.25 mm.)	Fine sand (0.25–0.1 mm.)	Very fine sand (0.1–0.05 mm.)	Total sand (2.0–0.05 mm.)
	In.			*Pct.*	*Pct.*	*Pct.*	*Pct.*
Commerce silt loam:	0–6	Ap	Silt loam	---	---	4	4
	6–14	B1	Silt loam	---	---	5	5
S68-Ark-18-14	14–20	B2	Silt loam	---	---	10	10
	20–23	C1	Silt loam	---	---	14	14
	23–30	C2	Silt loam	---	---	5	5
	30–48	C3g	Silty clay loam	---	---	---	---
Crevasse fine sand:	0–5	Ap	Fine sand	22	60	6	88
	5–30	C1	Sand	59	31	5	95
S68-Ark-18-9	30–48	C2	Fine sand	5	84	7	96
Earle clay:	0–4	Ap	Clay	2	1	1	4
	4–19	B21g	Clay	3	3	3	9
S69-Ark-18-4	19–30	B32g	Clay	5	6	2	13
	30–42	IIB3g	Fine sandy loam	38	33	4	75
	42–58	IIC1	Loamy sand	44	36	3	83
	58–72	IIC2	Loamy sand	31	47	7	85
Forestdale silty clay loam:	0–6	Ap	Silty clay loam	1	1	6	8
	6–11	A12	Silty clay loam	2	1	4	7
S68-Ark-18-8	11–22	B21tg	Silty clay	---	---	6	6
	22–31	B22tg	Silty clay loam	---	1	7	8
	31–48	B3g	Silt loam	---	---	8	8

growth of plants or behavior of soils when used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence.

Nomenclature

The nomenclature of classes in each of the five highest categories is mainly connotative. The formative elements come chiefly from the classical languages. Because many of the roots are familiar, they are helpful in visualizing the soil. For example, the Forestdale soils are classified as Typic Ochraqualfs. The formative elements indicate that Forestdale soils are typical (typ), light colored (ochr), modified by water (aqu), and have a high base saturation (alf). The base saturation is 35 percent or more at a depth of 50 inches below the top of the B horizon.

The names are distinctive for the classes in each category so that they indicate the category to which a given class belongs. Moreover, the names are so designed that each subgroup, by its name, identifies the soil with the great group, suborder, and order to which it belongs. For example, the name Typic Ochraqualfs indicates a class in a subgroup. From the name, one can identify the great group (Ochraqualfs), the suborder (Aqualfs), and the order (Alfisols).

Physical and Chemical Analyses

Physical and chemical data resulting from laboratory analyses can be useful to the soil scientist in classifying soils. These data are helpful in estimating available water capacity, acidity, base-exchange capacity, mineralogical composition, organic-matter content, and other characteristics that affect management needs. The data are also helpful in developing concepts of soil formation. More recently, laboratory data have proved helpful in rating soils for nonfarm uses; that is, for residential, industrial, recreational, or transportational use.

Several factors are involved in selecting soils for laboratory analyses. Soils that are extensive and most important in the survey area are considered first. A review of available laboratory data is made to determine the need for additional information about these particular soils. Generally, priority is given to soils for which little or no laboratory data are available.

In Crittenden County soils representing 7 soil series were selected for laboratory analyses. Profiles of these soils are described in the section "Descriptions of the Soils." The analyses were made by the University of Arkansas in Fayetteville. Table 11 shows the results. Soil textures reported in the table are not necessarily the same as those stated in the section "Descriptions of the Soils," which are field determinations.

chemical analyses of selected soils

Dashes indicate that analysis was not made or data were inconclusive]

Particle-size distribution—Continued		Extractable bases				Extractable hydrogen	Base saturation	Reaction (1:1 soil-water ratio)	Organic-matter content	Available phosphorus (P_2O_5)
Silt (0.05–0.002 mm.)	Clay (<0.002 mm.)	Ca	Mg	Na	K					
Pct.	*Pct.*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Pct.*	*pH*	*Pct.*	*p.p.m.*
76	20	9.9	4.2	0.2	0.5	2.1	88	6.7	1.3	23
73	22	10.7	4.7	.2	.4	1.5	91	7.1	.9	6
72	18	8.6	4.1	.2	.3	1.3	91	7.7	.8	4
73	13	10.1	3.6	.2	.2	1.0	93	7.8	.7	5
79	16	11.9	3.8	.2	.3	1.0	94	7.8	.9	6
70	30	20.0	4.7	.2	.5	1.7	94	7.7	0	8
10	2	1.8	.5	.2	.2	2.5	52	5.3	.2	70
3	2	2.1	.5	.1	----------	1.1	71	5.9	----------	30
3	1	2.1	.6	.2	.1	1.1	73	6.0	----------	26
30	66	15.2	7.9	.3	.8	15.5	61	5.1	1.1	28
30	61	13.2	7.2	.3	.8	20.1	52	4.7	.9	26
26	61	12.8	7.5	.4	.8	20.9	51	4.7	.5	28
7	18	5.2	3.2	.2	.3	5.9	60	5.2	.3	49
5	12	4.4	2.6	.2	.2	3.6	67	5.6	.2	43
6	9	3.9	2.3	.2	.2	4.4	60	5.7	.2	40
59	33	12.6	3.0	.2	.6	10.8	60	5.6	2.8	48
57	36	11.5	2.8	.2	.5	12.4	55	5.5	2.2	35
45	49	16.0	6.0	.3	.6	15.5	60	4.9	1.2	27
55	37	13.9	5.5	.3	.5	10.5	66	5.1	.8	25
68	24	11.3	4.5	.3	.4	5.3	76	5.5	.4	27

TABLE 11.—*Physical and chemical*

Soil and sample number	Depth from surface	Horizon	USDA texture	Particle-size distribution			
				Very coarse through medium sand (2.0–0.25 mm.)	Fine sand (0.25–0.1 mm.)	Very fine sand (0.1–0.05 mm.)	Total sand (2.0–0.05 mm.)
	In.			*Pct.*	*Pct.*	*Pct.*	*Pct.*
Mhoon silt loam:	0–6	Ap	Silt loam		5	18	23
	6–11	B21g	Silt loam to silty clay loam.		3	10	13
S68-Ark-18-11	11–22	B22g	Loam to clay loam		6	20	26
	22–34	IIB23g	Silty clay			3	3
	34–51	IIC1g	Silt loam to silty clay loam.			3	3
Robinsonville very fine sandy loam:	0–6	Ap	Very fine sandy loam.		11	48	59
S69-Ark-18-5	6–12	C1	Very fine sandy loam.		16	50	66
	12–30	C2	Very fine sandy loam.		17	58	75
	30–45	C3	Very fine sandy loam.		14	53	67
	45–60	C4	Very fine sandy loam to loamy very fine sand.		15	59	74
	60–72	C5	Silt loam		2	36	38
Sharkey silty clay:	0–5	Ap	Silty clay			1	1
	5–8	A12	Silty clay			1	1
S68-Ark-18-2	8–17	B21g	Clay				
	17–25	B22g	Clay				
	25–36	B23g	Clay				
	36–48	B24g	Clay				

Particle-size distribution was determined by the hydrometer method (*4*).

Organic carbon was determined by the Walkley-Black method of digestion using potassium dichromate-sulfuric acid (*6*). Percent organic matter was then calculated, using the equation: percent organic carbon x 1.72 = percent organic matter.

Soil pH was determined by using a Beckman pH meter on mixtures of soil and water at a 1:1 ratio. Available phosphorus was extracted by the Bray No. 1 solution (0.03N NH_4F in 0.025 N HCL) and determined colorimetrically.

The bases were extracted with pH7 1N ammonium acetate. Magnesium was determined colorimetrically (*6*). The other bases were determined by flame photometry. The extractable acidity was determined by the Barium chloride-triethanolamine method (*3*). The total of extractable calcium, potassium, magnesium, sodium, and acidity is an approximation of the cation exchange capacity of the soil. Base saturation percent was determined by dividing this total into the sum of calcium, potassium, magnesium, and sodium and multiplying by 100.

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analyses of selected soils—Continued

Particle-size distribution—Continued		Extractable bases				Extractable hydrogen	Base saturation	Reaction (1:1 soil-water ratio)	Organic-matter content	Available phosphorus (P_2O_5)
Silt (0.05–0.002 mm.)	Clay (<0.002 mm.)	Ca	Mg	Na	K					
Pct.	*Pct.*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Meq./100 gm. of soil*	*Pct.*	*pH*	*Pct.*	*p.p.m.*
61	16	6.8	1.8	0.2	0.4	2.6	78	6.1	0.9	36
60	27	11.6	3.5	.2	.5	4.0	80	6.4	1.4	34
47	27	11.6	3.8	.2	.3	2.8	85	6.7	1.0	15
53	44	19.0	5.9	.3	.6	4.9	84	6.6	1.3	14
71	26	11.6	4.2	.2	.4	2.3	88	6.9	.8	20
31	10	4.9	2.2	.2	.3	1.6	83	6.9	.8	18
25	9	4.4	2.0	.1	.2	1.6	81	6.6	.8	19
17	8	4.4	2.7	.1	.2	1.0	88	7.8	.6	8
26	7	----------	1.8	.2	.2	----------	----------	8.0	.4	8
21	5	----------	1.5	.2	.2	----------	----------	8.1	.4	10
54	8	----------	1.8	.2	.2	----------	----------	8.1	.5	10
42	57	22.0	3.7	.3	.8	9.3	74	6.1	3.4	34
41	58	22.8	3.6	.4	.8	9.7	74	6.3	3.5	37
39	61	19.8	3.6	.3	.7	9.3	72	6.4	2.0	23
35	65	22.5	7.3	.4	.7	9.3	77	6.6	1.6	20
24	76	22.0	10.2	.5	0	9.3	78	6.6	1.4	18
35	65	24.0	9.2	.4	.9	7.8	82	6.9	1.2	17

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates such as crumbs, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Consistence soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Eluviation. The movement of material from one place to another within the soil, in either true solution or colloidal suspension. Soil horizons that have lost material through eluviation are said to be eluvial; those that have received material are illuvial.

Fertility, soil. The quality of a soil that enables it to provide compounds, in adequate amounts and in proper balance, for the growth of specified plants, when other growth factors, such as light, moisture, temperature, and the physical condition of the soil are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has been allowed to drain away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons:

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these; (2) by prismatic or blocky structure; (3) by redder or stronger colors than the A horizon; or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter C.

Illuviation. The accumulation of material in a soil horizon through the deposition of suspended material and organic matter removed from horizons above. Since part of the fine clay in the B horizon (or subsoil) of many soils has moved into the B horizon from the A horizon above, the B horizon is called an illuvial horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Internal soil drainage. The downward movement of water through the soil profile. The rate of movement is determined by the texture, structure, and other characteristics of the soil profile and underlying layers, and by height of the water table, either permanent or perched. Relative terms for expressing internal drainage are *none, very slow, slow, medium, rapid,* and *very rapid.*

Leaching. The removal of soluble materials from soils or other material by percolating water.

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural soil drainage. Refers to the conditions of frequency and duration of periods of saturation or partial saturation that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural soil drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Somewhat poorly drained soils are wet for significant periods but not all the time, and in Podzolic soils commonly have mottlings below 6 to 16 inches, in the lower A horizon and in the B and C horizons.

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil and carbon, hydrogen, and oxygen obtained largely from the air and water, are plant nutrients.

Parent material. The disintegrated and partly weathered rock from which soil has formed.

Ped. An individual natural soil aggregate, such as a crumb, a prism, or a block, in contrast to a clod.

Percolation. The downward movement of water through the soil.

Permeability. The quality of a soil horizon that enables water or air to move throught it. Terms used to describe permeability are as follows: *Very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Plowpan. A compacted layer formed in the soil immediately below the plowed layer.

Poorly graded. A soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles in poorly graded soil material, density can be increased only slightly by compaction.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction. In words, the degrees of acidity of alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Neutral	6.6 to 7.3
Very strongly acid	4.5 to 5.0	Mildly alkaline	7.4 to 7.8
Strongly acid	5.1 to 5.5	Moderately alkaline	7.9 to 8.4
Medium acid	5.6 to 6.0	Strongly alkaline	8.5 to 9.0
Slightly acid	6.1 to 6.5	Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments in soils having diameters ranging from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface soil, are similar in differentiating characteristics and in arrangement in the profile.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles, less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows: *Very coarse sand* (2.0 to 1.0 millimeter); *coarse sand* (1.0 to 0.5 millimeter); *medium sand* (0.5 to 0.25 millimeter); *fine sand* (0.25 to 0.10 millimeter); *very fine sand* (0.10 to 0.05 millimeter); *silt* (0.05 to 0.002 millimeter); and *clay* (less than 0.002 millimeter). The separates recognized by the International Society of Soil Science are as follows: I (2.0 to 0.2 millimeters); II (0.2 to 0.02 millimeter); III (0.02 to 0.002 millimeter); IV (less than 0.002 millimeter).

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soils structures are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or the sea. Stream terraces are frequently called second bottoms, as contrasted to flood plains, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportions of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which plants (specifically sunflower) wilt so much that they do not recover when placed in a dark, humid atmosphere.

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. Management of the soils for crops and pasture is suggested in the description of each mapping unit. The capability grouping is explained on pages 23 and 24. Other information is given in tables as follows:

Acreage and extent, table 4, page 8.
Predicted yields, table 5, page 25.
Use of the soils in engineering, tables 7 and 8, pages 30 through 37.

Use of the soils for town and country planning, table 9, page 36.

Map symbol	Mapping unit	Described on page	Capability unit
			Symbol
AlA	Alligator silty clay, 0 to 1 percent slopes	9	IIIw-1
AlU	Alligator silty clay, gently undulating	9	IIIw-1
Be	Beulah soils	9	IIs-1
Bp	Borrow pits	9	-------
BrA	Bowdre silty clay, 0 to 1 percent slopes	10	IIw-1
BrU	Bowdre silty clay, gently undulating	10	IIw-1
Bw	Bowdre silty clay, frequently flooded	10	IVw-1
Cm	Commerce silt loam	11	I-1
Co	Commerce silt loam, frequently flooded	11	IVw-2
Cr	Crevasse fine sand	12	IVs-1
Cs	Crevasse fine sand, frequently flooded	12	IVw-3
DsA	Dubbs silt loam, 0 to 1 percent slopes	14	I-1
DsU	Dubbs silt loam, gently undulating	14	I-1
DuA	Dundee silt loam, 0 to 1 percent slopes	15	IIw-2
DuU	Dundee silt loam, gently undulating	15	IIw-2
Ea	Earle clay	15	IIIw-1
Fo	Forestdale silty clay loam	17	IIIw-1
Je	Jeanerette silt loam	18	IIw-2
Mh	Mhoon silt loam	19	IIw-2
Rn	Robinsonville very fine sandy loam	19	I-1
Ro	Robinsonville very fine sandy loam, frequently flooded	19	IVw-2
ShA	Sharkey silty clay, 0 to 1 percent slopes	20	IIIw-1
ShU	Sharkey silty clay, gently undulating	20	IIIw-1
Sk	Sharkey silty clay, frequently flooded	20	IVw-1
TnA	Tunica clay, 0 to 1 percent slopes	22	IIIw-1
TnU	Tunica clay, gently undulating	23	IIIw-1
Tu	Tunica clay, frequently flooded	23	IVw-1

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ARKANSAS AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
CRITTENDEN COUNTY, ARKANSAS

Scale 1:190,080

1 0 1 2 3 4 Miles

SOIL ASSOCIATIONS *

1 — Alligator-Forestdale-Earle association: Poorly drained and somewhat poorly drained, level and gently undulating, predominantly clayey soils on slack-water flats and old natural levees

2 — Sharkey-Tunica association: Poorly drained, level and gently undulating, clayey soils on slack-water flats

3 — Commerce-Robinsonville association: Somewhat poorly drained and well drained, level, loamy soils on young natural levees

4 — Sharkey association: Poorly drained, level and gently undulating, predominantly flooded, clayey soils on slack-water flats

5 — Dundee-Dubbs association: Somewhat poorly drained and well-drained, level and gently undulating, loamy soils on old natural levees

6 — Alligator-Sharkey association: Poorly drained, level and gently undulating, clayey soils on slack-water flats

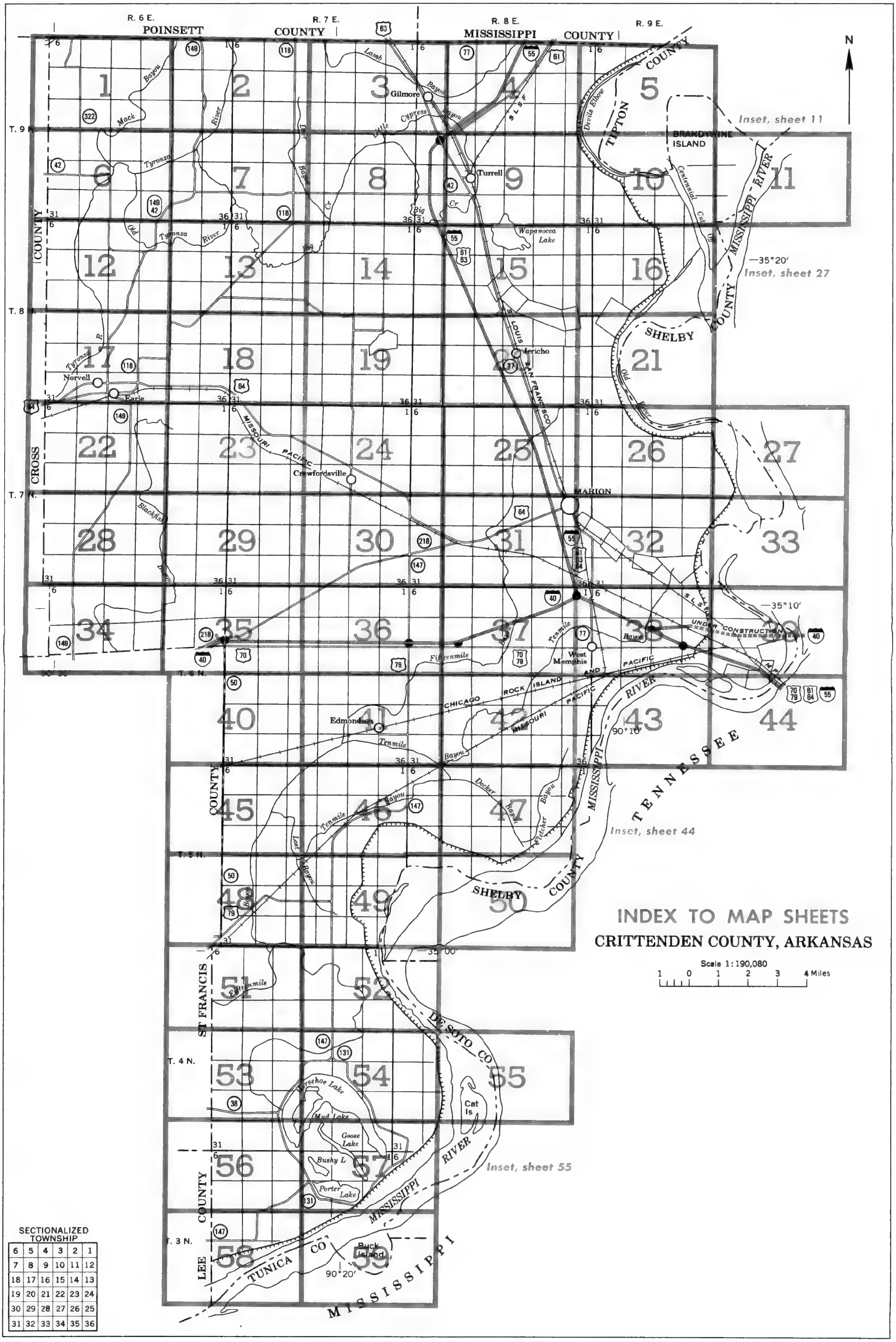
* Texture in the name of the association refers to the surface layer of the major soils.

Compiled 1972

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36


INDEX TO MAP SHEETS
CRITTENDEN COUNTY, ARKANSAS
Scale 1:190,080
1 0 1 2 3 4 Miles
N
R. 6 E.
R. 7 E.
R. 8 E.
R. 9 E.
T. 9 N.
T. 8 N.
T. 7 N.
T. 6 N.
T. 5 N.
T. 4 N.
T. 3 N.
POINSETT COUNTY
MISSISSIPPI COUNTY
TIPTON COUNTY
SHELBY COUNTY
CROSS COUNTY
ST FRANCIS COUNTY
LEE COUNTY
TUNICA CO
DE SOTO CO
TENNESSEE
MISSISSIPPI
MISSISSIPPI RIVER
Inset, sheet 11
Inset, sheet 27
Inset, sheet 44
Inset, sheet 55
BRANDYWINE ISLAND
Devils Elbow
Centennial Cut
Gilmore
Turrell
Jericho
Norvell
Earle
Crawfordsville
MARION
West Memphis
Edmondson
Wapanocca Lake
Horseshoe Lake
Mud Lake
Goose Lake
Bushy L
Porter Lake
Cat Is
Buck Island
Mack Bayou
Tyronza River
Old Tyronza River
Little Cypress Bayou
Big Cr
Blackfish
Fifteenmile
Tenmile Bayou
Decker Bayou
Fletcher Bayou
Lost Bayou
Elevenmile
Old River
ST LOUIS SAN FRANCISCO
SLSF
MISSOURI PACIFIC
CHICAGO ROCK ISLAND AND PACIFIC
UNDER CONSTRUCTION
35°20′
35°10′
35°00′
90°10′
90°20′
SECTIONALIZED TOWNSHIP
6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, indicates the slope, and U indicates a gently undulating soil. Symbols without a slope letter are those of nearly level soils.

SYMBOL	NAME
AlA	Alligator silty clay, 0 to 1 percent slopes
AlU	Alligator silty clay, gently undulating
Be	Beulah soils
Bp	Borrow pits
BrA	Bowdre silty clay, 0 to 1 percent slopes
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Sk	Sharkey silty clay, frequently flooded
TnA	Tunica clay, 0 to 1 percent slopes
TnU	Tunica clay, gently undulating
Tu	Tunica clay, frequently flooded

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Divided
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State or county

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail
- Railroad
- Ferry (FY)
- Ford (FORD)
- Grade
- R. R. over
- R. R. under

Buildings
- School
- Church

Mine and quarry

Gravel pit

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Well, oil or gas

Forest fire or lookout station

Windmill

Located object

BOUNDARIES

- National or state
- County
- Minor civil division
- Reservation
- Land grant
- Small park, cemetery, airport
- Land survey division corners

DRAINAGE

Streams, double-line
- Perennial
- Intermittent

Streams, single-line
- Perennial
- Intermittent
  - Crossable with tillage implements
  - Not crossable with tillage implements
- Unclassified

Canals and ditches

Lakes and ponds
- Perennial (water, w)
- Intermittent (int)

Spring

Marsh or swamp

Wet spot

Drainage end or alluvial fan

RELIEF

Escarpments
- Bedrock
- Other

Short steep slope

Prominent peak

Depressions

	Large	Small
Crossable with tillage implements		
Not crossable with tillage implements		
Contains water most of the time		

SOIL SURVEY DATA

- Soil boundary and symbol (Dx)
- Gravel
- Stoniness
  - Stony
  - Very stony
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gully

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 1

CRITTENDEN COUNTY, ARKANSAS NO. 1

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Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 2

N

R. 6 E. | R. 7 E.

POINSETT COUNTY

2 490 000 FEET

405 000 FEET

T. 9 N.

(Joins sheet 1)

(Joins sheet 3)

395 000 FEET

2 470 000 FEET

(Joins sheet 7)

Mack Bayou

Luss Lake

Galilee

DITCH NO. 23

DITCH NO. 14

DITCH NO. 13

DITCH NO. 15

DITCH NO. 16

RIVER

water

1 Mile

5 000 Feet

Scale 1:20 000

Land division corners are approximately posit oned on this map

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CRITTENDEN COUNTY, ARKANSAS NO. 2

CRITTENDEN COUNTY, ARKANSAS NO. 3

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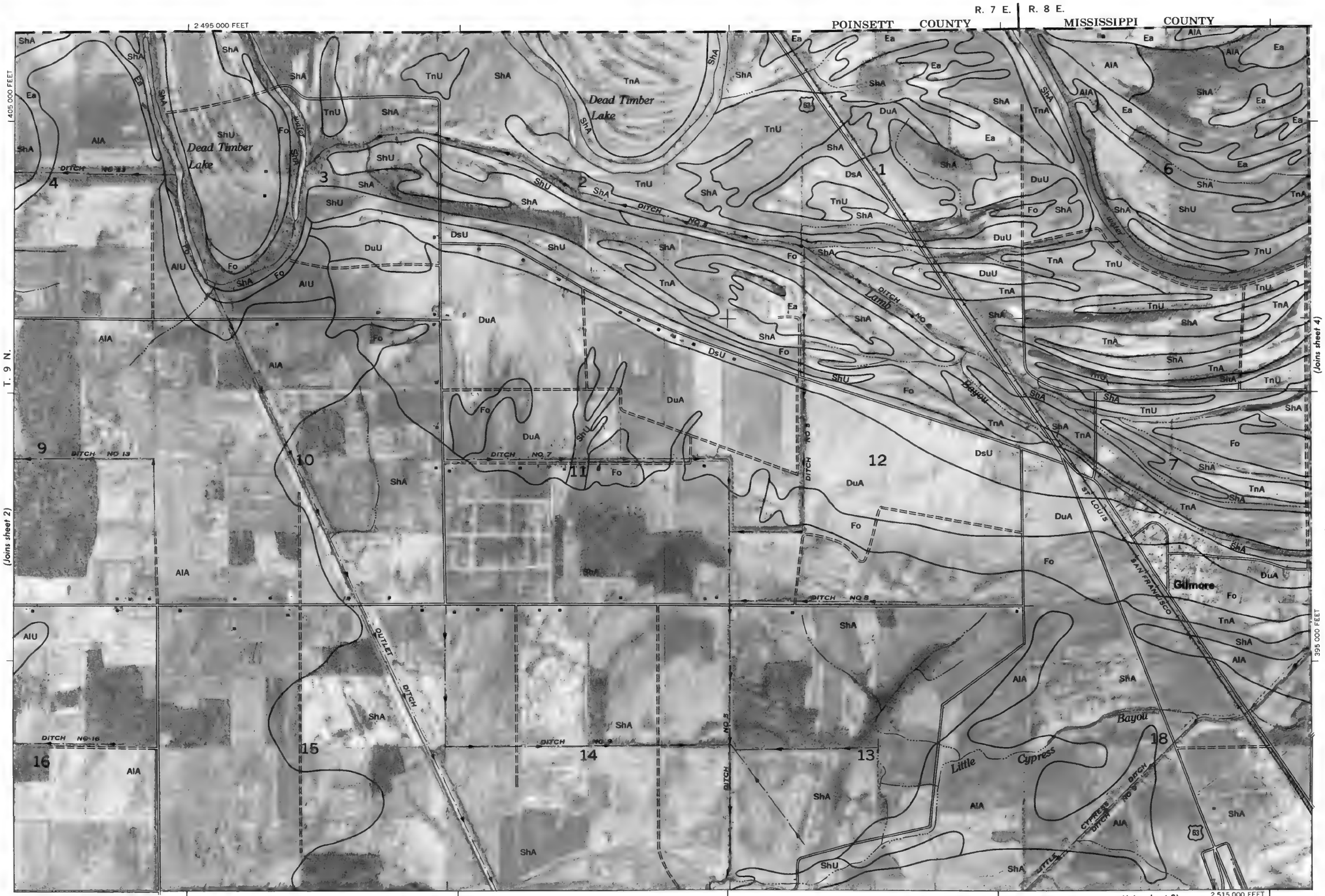


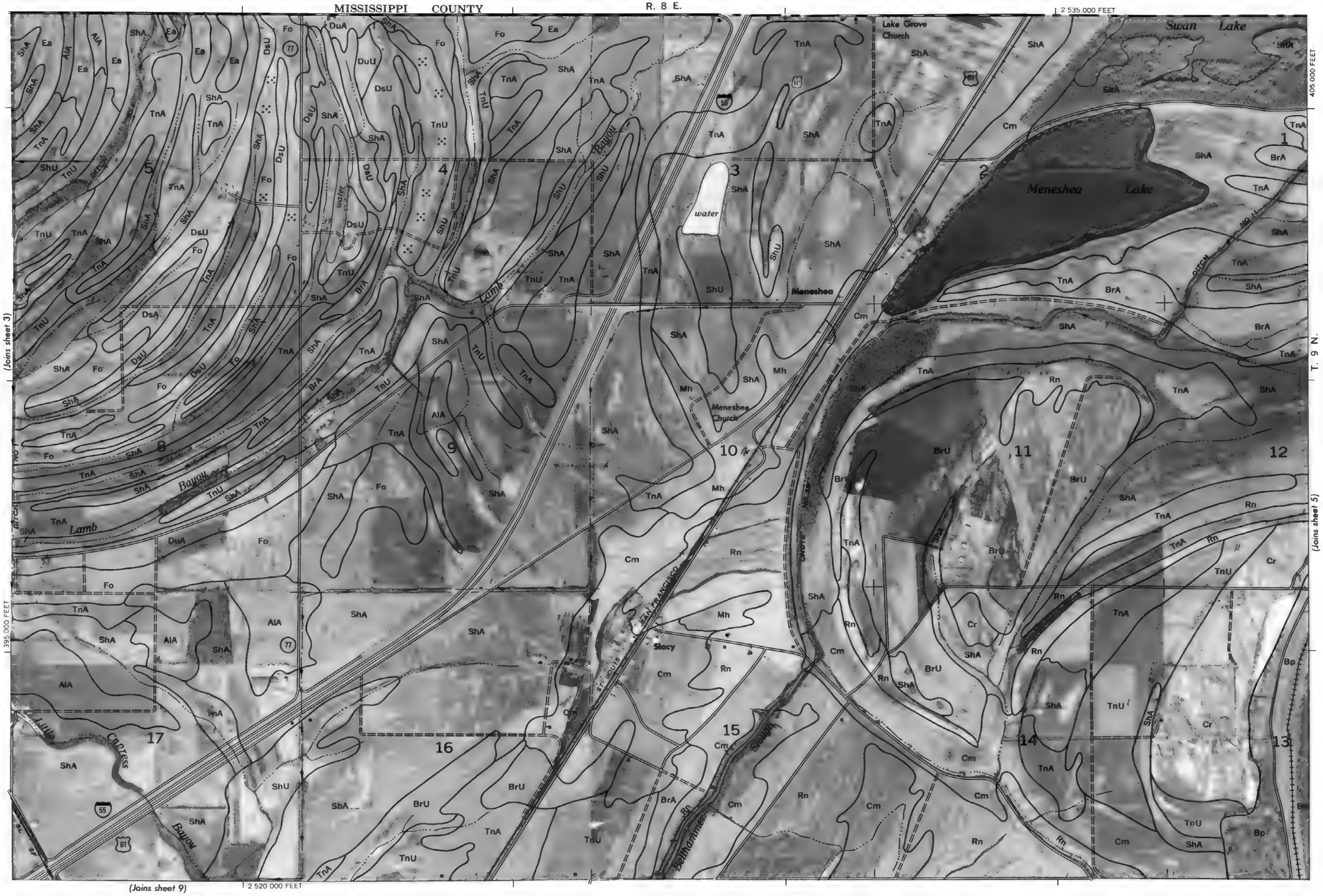
3

N

1 Mile

5 000 Feet

Scale 1:20 000



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CRITTENDEN COUNTY, ARKANSAS NO. 4

CRITTENDEN COUNTY, ARKANSAS NO. 5

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Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

6

N

R. 6 E.

(Joins sheet 1)

2 465 000 FEET

390 000 FEET

T. 9 N.

1 Mile

5 000 Feet

Scale 1:20 000

1 0 ¼ 0 ½ ¾ 1

5 000 4 000 3 000 2 000 1 000 0

CROSS COUNTY

19 20 21 22

30 29 28 27

31 32 33 34

Mack Bayou

Mack Bayou

OLD TYRONZA RIVER

Stump Lake

Beautiful Lake

water

(Joins sheet 7)

375 000 FEET

2 445 000 FEET

(Joins sheet 12)

Land division corners are approximately positioned on this map

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone

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CRITTENDEN COUNTY, ARKANSAS NO. 6

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 7

CRITTENDEN COUNTY, ARKANSAS NO. 7

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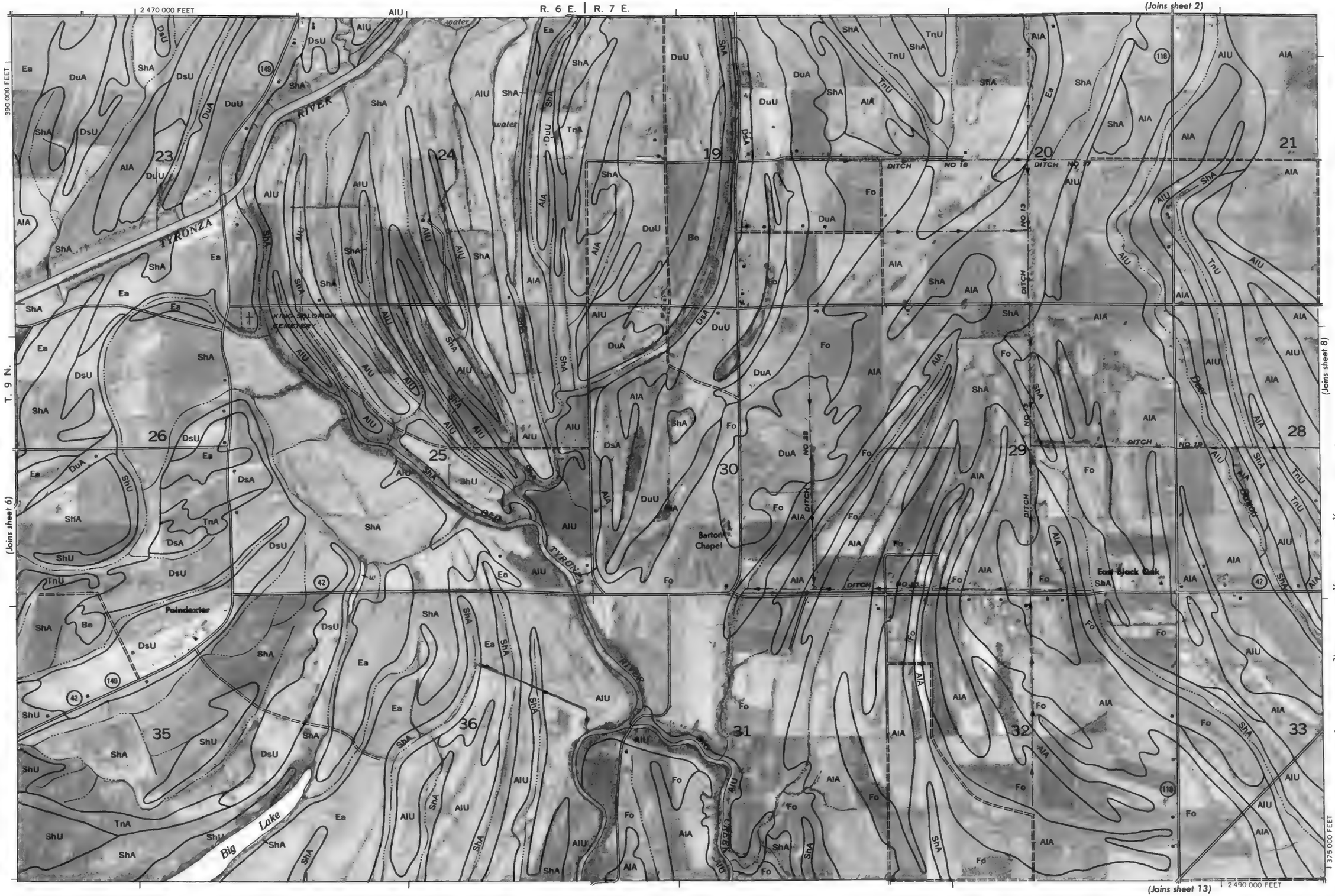

(8)

N

Scale 1:20 000

1 Mile 5 000 Feet

0 0

¼ 1 000 2 000

½ 3 000

¾ 4 000

1 5 000

(Joins sheet 3)

R. 7 E. | R. 8 E.

2 515 000 FEET

390 000 FEET

T. 9 N.

(Joins sheet 7)

(Joins sheet 9)

375 000 FEET

(Joins sheet 14)

2 495 000 FEET

Land division corners are approximately positioned on this map.

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CRITTENDEN COUNTY, ARKANSAS NO. 8

CRITTENDEN COUNTY, ARKANSAS NO. 9

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Land division corners are approximately positioned on this map.

2 520 000 FEET

R. 8 E.

(Joins sheet 4)

390 000 FEET

T. 9 N.

(Joins sheet 8)

Lake David

Little Cypress Bayou

St. Louis San Francisco

DITCH NO 2

Turrell

Turrell School

Dry Bayou

Bellhammer Slough

DITCH NO 12

water

DITCH NO 4

DITCH NO 8

BIG CREEK

WAPANOCCA NATIONAL WILDLIFE REFUGE

Wapanocca Lake

CHUTE NO 38

Union Grove Church

DITCH NO 1

DITCH NO 2

20 21 22 23 24 25 26 27 28 29 32 33 34 35 36

ShA ShU TnA TnU BrA BrU Cm Rn Cr Be Sk Bw Cs Tu AlU AlA

(Joins sheet 10)

2 535 000 FEET

375 000 FEET

(Joins sheet 15)

N

1 Mile

5 000 Feet

Scale 1:20 000

0 5 000 1 000 2 000 3 000 4 000

1/4 1/2 3/4 1

N

R. 8 E. | R. 9 E.

(Joins sheet 5)

2 560 000 FEET

390 000 FEET

T. 9 N.

1 Mile

5 000 Feet

Scale 1:20 000

0 0

¼ 1 000

½ 2 000

¾ 3 000

1 4 000

5 000

DEVILS ELBOW

INDEFINITE BOUNDARY

TIPTON COUNTY TENNESSEE

INDEFINITE BOUNDARY

BRANDYWINE ISLAND

CENTENNIAL CUT OFF

DITCH NO. 7

DITCH NO. 3

Point Scudder

Lambethville

water

19 24 25 30 29 28 27 22 36 31 32 33 34

Bp Cm Cr Cs Co Bw Rn Ro Sk ShA Tu TnU

(Joins sheet 9)

(Joins sheet 11)

(Joins sheet 16)

375 000 FEET

2 540 000 FEET

Land division corners are approximately positioned on this map

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CRITTENDEN COUNTY, ARKANSAS NO. 11

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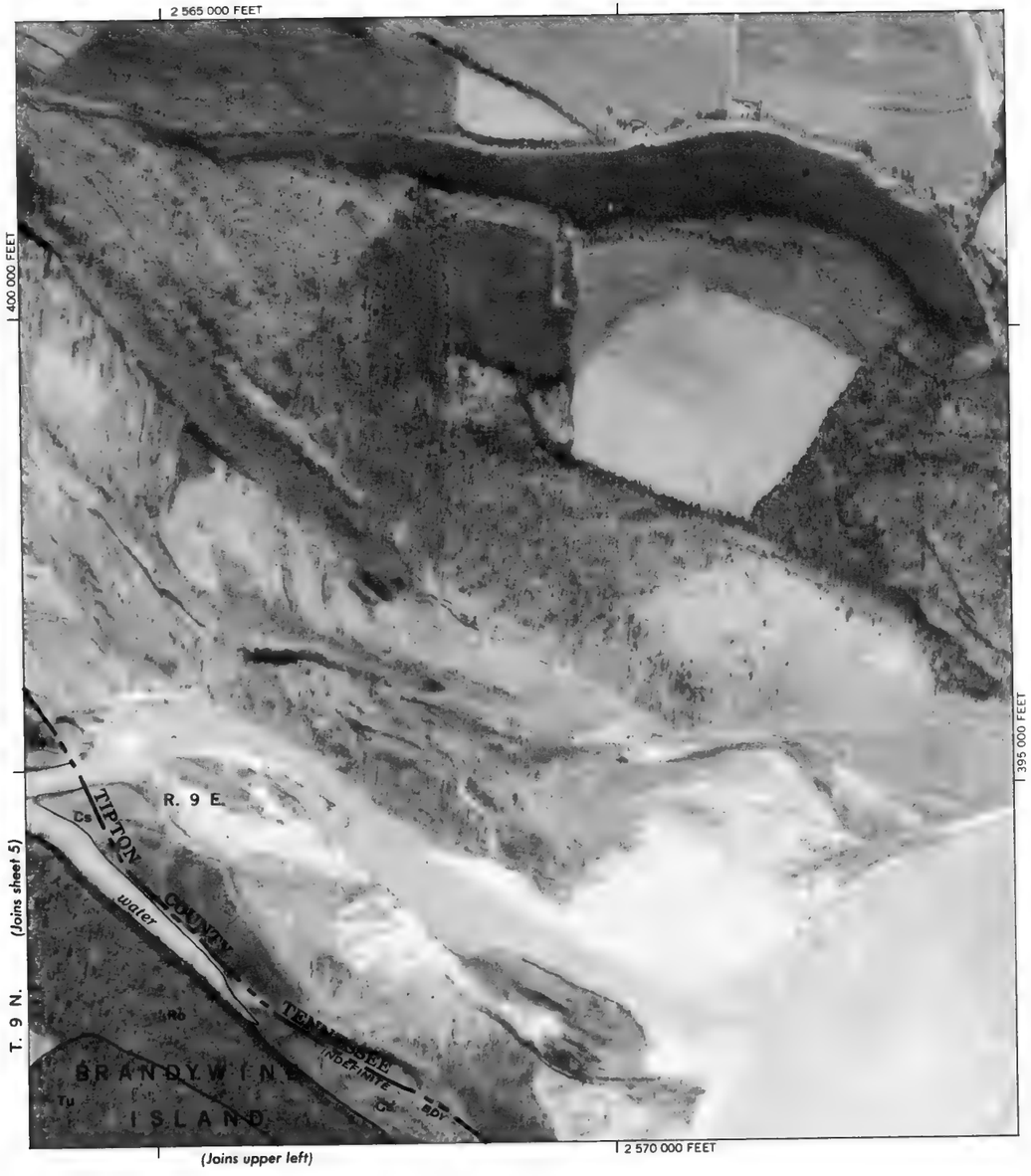

N

1 Mile
5 000 Feet
Scale 1:20 000
1 0 1
¾ 0 ½
5 000 4 000 3 000 2 000 1 000 0 ¼

N

R. 6 E.

(Joins sheet 6)

2 465 000 FEET

T. 8 N.

1 370 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

0 ¼ ½ ¾ 1

0 1 000 2 000 3 000 4 000 5 000

CROSS COUNTY

CRITTENDEN COUNTY

Little Grassy Lake

Hood Lake

OLD TYRONZA RIVER

TYRONZA RIVER

HOOD CEMETERY

LAYTON CEMETERY

St Peters Church

Three Forks

AlA AlU Be BrA BrU DsA DsU DuA DuU Ea Fo ShA ShU TnU

(Joins sheet 13)

(Joins sheet 17)

2 445 000 FEET

1 360 000 FEET

Land division corners are approximately positioned on this map

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CRITTENDEN COUNTY, ARKANSAS NO. 13
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Land division corners are approximately positioned on this map.

(14)

N

Scale 1:20 000

1 Mile 5 000 Feet

0 0 ¼ 1 000 ½ 2 000 ¾ 4 000 1 5 000

R. 7 E. R. 8 E.

T. 8 N.

2 515 000 FEET

370 000 FEET

360 000 FEET

2 495 000 FEET

(Joins sheet 8)

(Joins sheet 13)

(Joins sheet 15)

(Joins sheet 19)

C.R.E.E.K.

B.F.C.

DITCH NO 6

DITCH NO 1

DITCH NO 2

DITCH NO 3

Land division corners are approximately positioned on this map

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

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CRITTENDEN COUNTY, ARKANSAS NO. 14

CRITTENDEN COUNTY, ARKANSAS NO. 15

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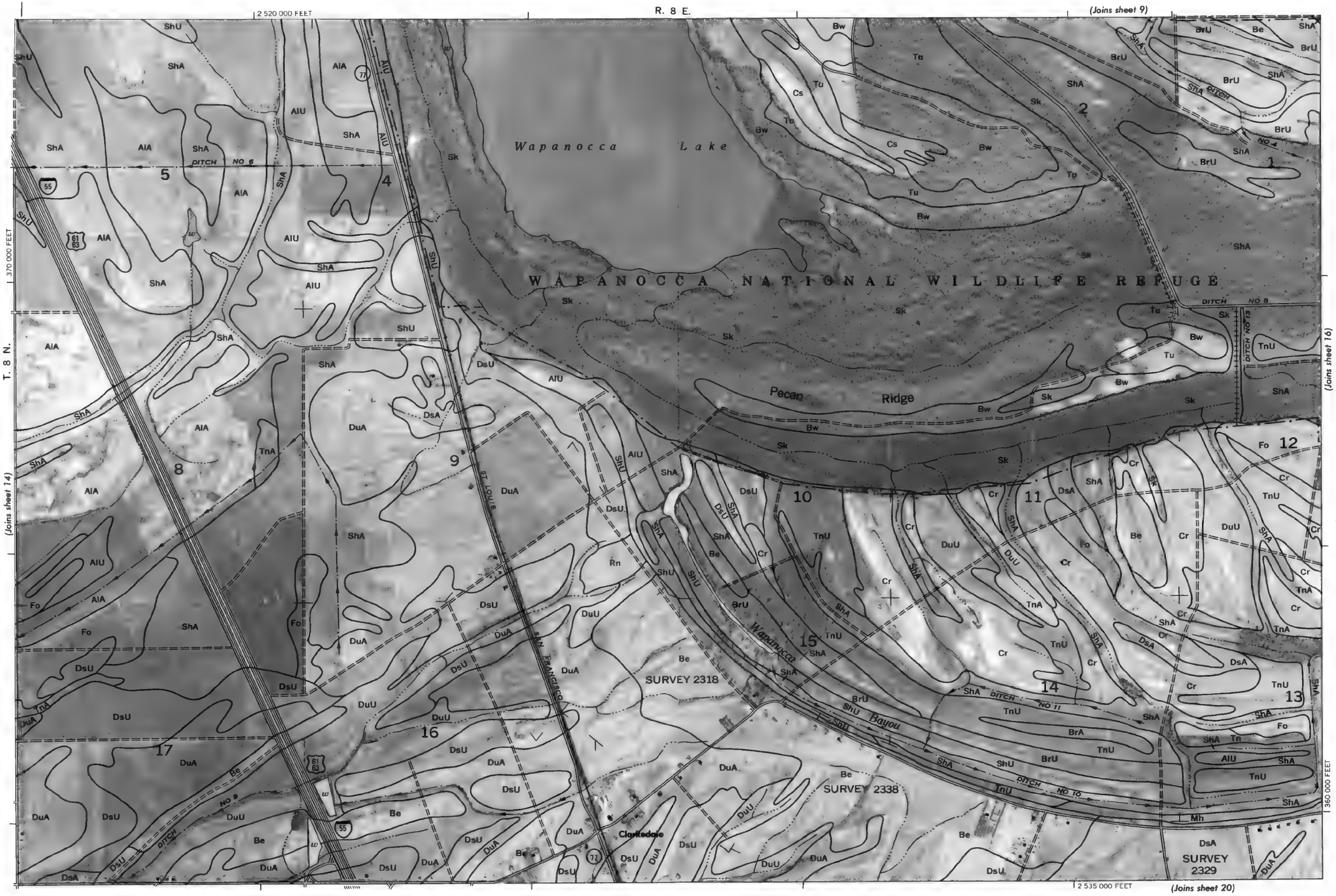
Land division corners are approximately positioned on this map



16

N

R. 8 E. | R. 9 E. (Joins sheet 10)

2 560 000 FEET

(Joins inset, sheet 27)

T. 8 N.

370 000 FEET

(Joins sheet 15)

360 000 FEET

2 540 000 FEET (Joins sheet 21)

WAPANOCCA NATIONAL WILDLIFE REFUGE

SURVEY 2381

SURVEY 2933

Poker Point

Mt Olive Church

Lake Danner

MISSISSIPPI RIVER

DITCH NO 4

DITCH NO 5

DITCH NO 6

DITCH NO 12

Scale 1:20 000

1 Mile | 5 000 Feet

1 5 000 | ¾ 4 000 | ½ 3 000 | ¼ 2 000 | 0 1 000 | 0

Land division corners are approximately positioned on this map.

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CRITTENDEN COUNTY, ARKANSAS NO. 16

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 17

17

N

(Joins sheet 12)

2 445 000 FEET

355 000 FEET

R. 6 E.

T. 8 N.

CROSS COUNTY

(Joins sheet 18)

345 000 FEET

(Joins sheet 22)

2 465 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

CRITTENDEN COUNTY, ARKANSAS NO. 17

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Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

(18)

N

(Joins sheet 13)

R. 6 E. | R. 7 E.

2 490 000 FEET

1 Mile

5 000 Feet

0

0

Scale 1:20 000

1 000

2 000

3 000

4 000

5 000

¼

½

¾

1

345 000 FEET

355 000 FEET

T. 8 N.

(Joins sheet 17)

(Joins sheet 19)

2 470 000 FEET

(Joins sheet 23)

Broubham Lake

Gibson Bayou

Spring Hill Church

DITCH NO 13

DITCH NO 9

DITCH NO 7

DITCH NO 1

water

Missouri PACIFIC

Grassy Lake

23 24 19 20 21 25 30 29 28 26 35 36 31 32 33

ShA DuU Fo AlA DuA DsU DsA AlU TnU TnA ShU Je

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

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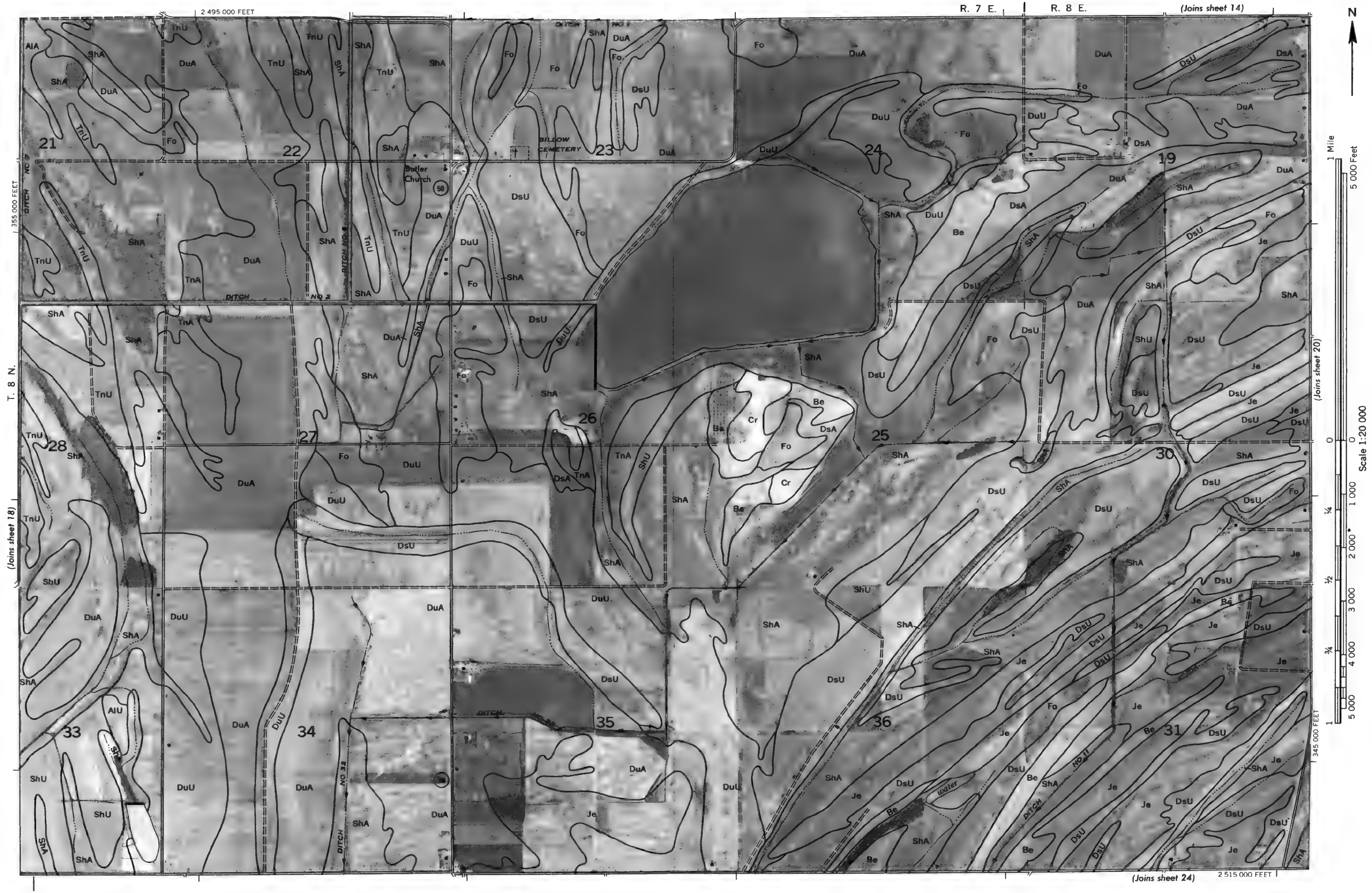
CRITTENDEN COUNTY, ARKANSAS NO. 18

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 19



CRITTENDEN COUNTY, ARKANSAS NO. 19

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Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

(20)

N

1 Mile

5 000 Feet

Scale 1:20 000 (Joins sheet 19)

0 0 1/4 1 000 1/2 2 000 3/4 3 000 1 4 000 5 000

(Joins sheet 15)

R. 8 E.

2 535 000 FEET

355 000 FEET

T. 8 N.

345 000 FEET

(24) (Joins sheet 25)

2 520 000 FEET

(Joins sheet 21)

SURVEY 2338

SURVEY 2329

SURVEY 2933

New Mt Zion Church

Paradise Church

Jerusalem Church

Jerico

James Mill

SALEM CEMETERY

CRUSE CEM

DITCH

ST LOUIS SAN FRANCISCO

water

20 21 22 23 24 25 26 27 28 29 32 33 34 35 36

DsU DsA DuU DuA Be Je ShU ShA TnU TnA Fo AlU AlA BrU

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station

CRITTENDEN COUNTY, ARKANSAS NO. 21

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

2 540 000 FEET R. 8 E. | R. 9 E. (Joins sheet 16)

355 000 FEET

T. 8 N.

(Joins sheet 20)

(Joins sheet 26)

2 560 000 FEET

345 000 FEET

SURVEY 2329

SURVEY 2933

SURVEY 2381

24 25 30 36 31 32

DsA DuA DsU BrA ShA AlA Fo TnA Mh Cm Bp Bw Sk Co

Banner Lake

TENNESSEE

SHELBY COUNTY

OLD RIVER

MISSISSIPPI RIVER

N

1 Mile

5 000 Feet

Scale 1:20 000

N

R. 6 E.

(Joins sheet 17)

2 465 000 FEET

340 000 FEET

T. 7 N.

CROSS COUNTY

EARLE

New Hope Church

Mt Beulah Church

RUSSELL CEM

Brake

BLACKFISH BAYOU

NO 11 DITCH

NO 12 DITCH

PACIFIC MISSOURI

(Joins sheet 23)

(Joins sheet 28)

2 445 000 FEET

330 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

0 0 ¼ 1 000 2 000 ½ 3 000 ¾ 4 000 1 5 000

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station

CRITTENDEN COUNTY, ARKANSAS NO. 22

CRITTENDEN COUNTY, ARKANSAS NO. 23

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately posit oned on this map

2 470 000 FEET

R. 6 E. | R. 7 E.

(Joins sheet 18)

T. 7 N.

340 000 FEET

(Joins sheet 22)

(Joins sheet 24)

330 000 FEET

(Joins sheet 29)

2 490 000 FEET

N

Scale 1:20 000

1 Mile

5 000 Feet

Tupelo Brake

Zion Field Church

Lake Holda

Lansing

Horseshoe Lake

Macedonia Cemetery

Pacific Bayou

Dry

water

DITCH NO. 1

DITCH

Fo 1 2 3 4 5 6 7 8 9 11 12 13 14 16 17 18

AlA AlU Bp DsA DsU DuA DuU ShA ShU TnU

(24)

N

1 Mile

5 000 Feet

Scale 1:20 000

0 0 ¼ 1 000 ½ 2 000 ¾ 4 000 1 5 000

330 000 FEET

(Joins sheet 23)

(Joins sheet 30)

2 495 000 FEET

R. 7 E. | R. 8 E.

(Joins sheet 19) | (20)

2 515 000 FEET

340 000 FEET

T. 7 N.

(Joins sheet 25)

Land division corners are approximately positioned on this map

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 24

ShU ShA DuU DuA DsU DsA Be Je Fo TnU TnA Mh Cr

DITCH NO 23 DITCH NO 1 DITCH NO 5

Bayou

McNeil School

St Johns Church

Crawfordsville

Corinthian Church

Solomons Temple Church

MAYS CEMETERY

MISSOURI PACIFIC

64 64 BUS

CRITTENDEN COUNTY, ARKANSAS NO. 25

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

25

N

2 520 000 FEET

R. 8 E.

(Joins sheet 20)

340 000 FEET

T. 7 N.

(Joins sheet 24)

(Joins sheet 26)

2 535 000 FEET

(Joins sheet 31)

330 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

Harvard

Sunset

SURVEY 2323

SURVEY 2328

FIFTEENMILE BAYOU

NO. 5 DITCH

ST. LOUIS & SAN FRANCISCO

N

R. 8 E. | R. 9 E. (Joins sheet 21)

2 560 000 FEET

340 000 FEET

T. 7 N.

(Joins sheet 27)

(Joins sheet 25)

2 540 000 FEET

330 000 FEET

(Joins sheet 32)

SHELBY COUNTY TENNESSEE

OLD RIVER

Marion Lake

Redman Pt

DITCH NO. 5

1 Mile

5 000 Feet

Scale 1:20 000

1 0 1 000 2 000 3 000 4 000 5 000

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station

CRITTENDEN COUNTY, ARKANSAS NO. 27

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

N

1 Mile
5 000 Feet
Scale 1:20 000

N

R. 6 E.

(Joins sheet 22)

2 465 000 FEET

325 000 FEET

T. 7 N.

1 Mile

5 000 Feet

Scale 1:20 000

0 0

1/4 1 000

1/2 2 000

3/4 4 000

1 5 000

315 000 FEET

2 445 000 FEET

(Joins sheet 29)

(Joins sheet 34)

CROSS COUNTY

Land division corners are approximately positioned on this map

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 29
This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 30

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 30

CRITTENDEN COUNTY, ARKANSAS NO. 31

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

31

N

R. 8 E.

2 520 000 FEET

325 000 FEET

T. 7 N.

(Joins sheet 25)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 37)

2 535 000 FEET

315 000 FEET

MARION
(county seat)

SURVEY 2325

SURVEY 2324

SURVEY 2932

SURVEY 2931

BAYOU FIFTEENMILE

SAN FRANCISCO

CRITTENDEN MEMORIAL CEMETERY

FIFTEENTH CEMETERY

Ebony

Wylie Spur

Gavin

MISSOURI PACIFIC

DITCH NO. 9

DITCH NO. 10

DITCH NO. 16

DITCH NO. 18

water

Scale 1:20 000

1 Mile

5 000 Feet

N

R. 8 E. | R. 9 E. (Joins sheet 26)

2 560 000 FEET

325 000 FEET

T. 7 N.

(Joins sheet 31)

315 000 FEET

(Joins sheet 33)

2 540 000 FEET

(Joins sheet 38)

1 Mile

5 000 Feet

Scale 1:20 000

SURVEY 2324

SURVEY 2326

SURVEY 2322

SURVEY 2327

SURVEY 2290

MARION
(county seat)

McCarter Lake

Marion Lake

GREEN HILL CEMETERY

ST JOHNS CEM

Mound City

St Clair

SHELBY COUNTY, TENN

Mound City Chute

INDEFINITE BOUNDARY

TENMILE BAYOU

DITCH NO 5A

DITCH NO 5B

DITCH NO 1

DITCH NO 2

ST LOUIS SAN FRANCISCO

MISSOURI PACIFIC

Land division corners are approximately positioned on this map

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station

CRITTENDEN COUNTY, ARKANSAS NO. 33

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

1 ¾ ½ ¼ 0 1 Mile
5 000 4 000 3 000 2 000 1 000 0 5 000 Feet
Scale 1:20 000

N

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 33

(34)

N

R. 6 E.

(Joins sheet 28)

2 465 000 FEET

310 000 FEET

T. 6 N.

(Joins sheet 35)

300 000 FEET

2 445 000 FEET

Scale 1:20 000

1 Mile 5 000 Feet

0 0

¼ 1 000

½ 2 000

¾ 3 000

1 4 000

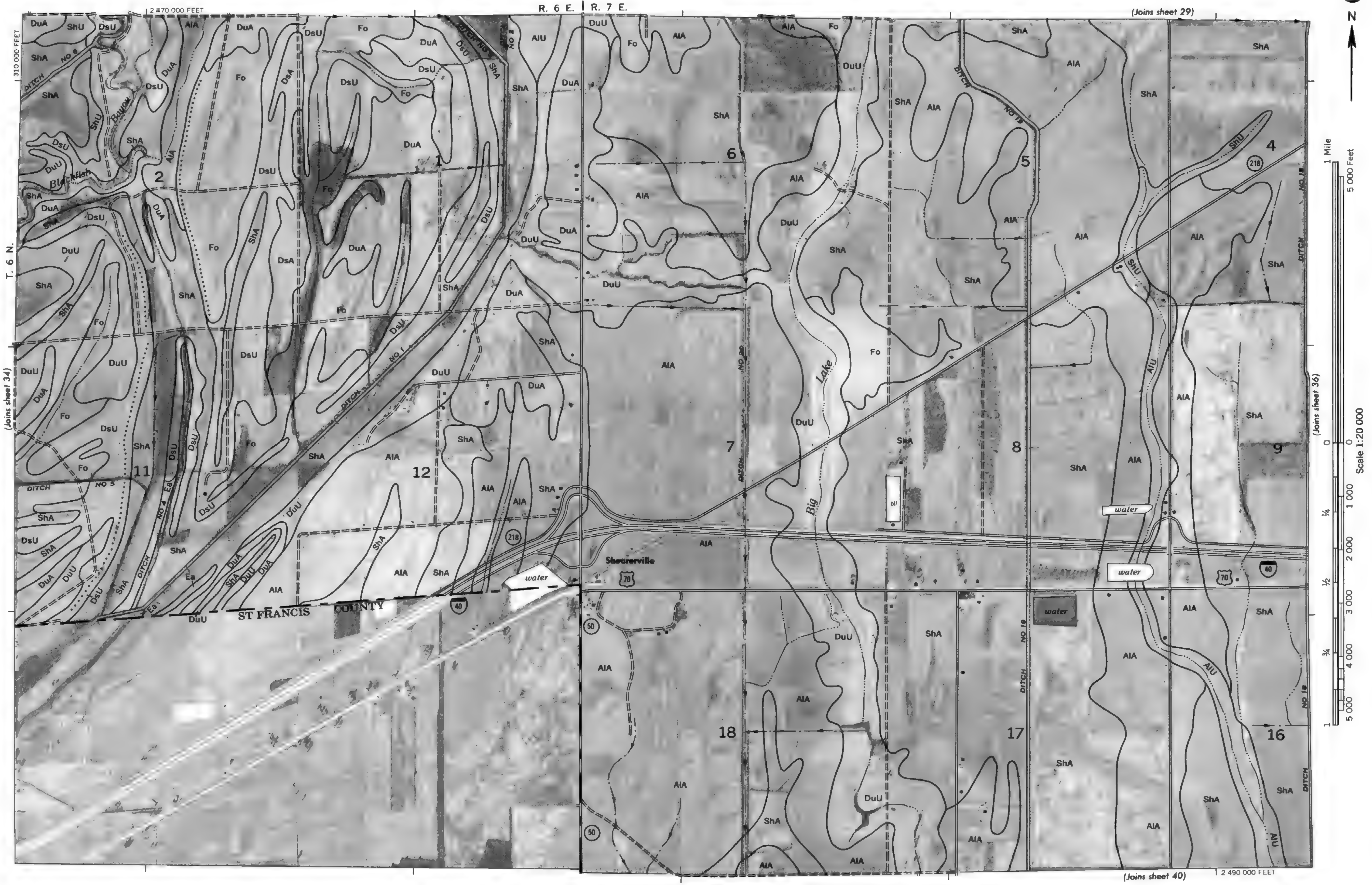
5 000

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 34



CRITTENDEN COUNTY, ARKANSAS NO. 35

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

(36)

N

(Joins sheet 30)

R. 7 E.

R. 8 E.

2 515 000 FEET

310 000 FEET

T. 6 N.

1 Mile

5 000 Feet

Scale 1:20 000

(Joins sheet 35)

0 ¼ ½ ¾ 1

0 1 000 2 000 3 000 4 000 5 000

300 000 FEET

(Joins sheet 41)

2 495 000 FEET

(Joins sheet 37)

ShA DuA DuU DsU Fo AlA AlU ShU water

New Lehi Church

Lehi

Bayou Sarah

FIFTEENMILE BAYOU

DITCH NO 12 DITCH NO 13 DITCH NO 14 DITCH NO 15 DITCH NO 16 DITCH NO 18 DITCH

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 36

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 37

37

CRITTENDEN COUNTY, ARKANSAS NO. 37

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

2 520 000 FEET

R. 8 E.

(Joins sheet 31)

310 000 FEET

T. 6 N.

(Joins sheet 36)

WEST MEMPHIS

MUNICIPAL AIRPORT

Hulbert Church

(Joins sheet 38)

(Joins sheet 42)

2 540 000 FEET

300 000 FEET

N

1 Mile

5 000 Feet

Scale 1:20 000

N

R. 8 E. | R. 9 E.

(Joins sheet 32)

2 560 000 FEET

310 000 FEET

T. 6 N.

1 Mile

5 000 Feet

Scale 1:20 000

(Joins sheet 37)

300 000 FEET

(Joins sheet 39)

(Joins sheet 43)

2 545 000 FEET

WEST MEMPHIS

Blytheville

Brinkley

Hulbert

Wimot

DITCH NO 5A

DITCH NO 5B

DITCH NO 6

BAYOU TENMILE

BAYOU NO 1

DITCH NO 4A

SAN FRANCISCO

ST LOUIS SAN FRANCISCO

MISSOURI PACIFIC

UNDER CONSTRUCTION

CHICAGO ROCK ISLAND AND PACIFIC

MISSISSIPPI RIVER

INDEFINITE BDY

SHELBY CO TENN

water

ShA ShU AlA AlU TnA TnU Bp Bw Sk Tu Cs

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 39

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

40

N

1 Mile
5 000 Feet
Scale 1:20 000
0 0
¼ 1 000
½ 2 000
¾ 3 000
1 4 000
5 000

R. 7 E.

(Joins sheet 35)

2 490 000 FEET

295 000 FEET

T. 6 N.

(Joins sheet 41)

280 000 FEET

2 470 000 FEET

(Joins sheet 45)

ST FRANCIS COUNTY

19 20 21 30 29 28 31 32 33

ShA AlA AlU DuU Ea ShU

50

NO 36 DITCH

NO 18 DITCH

Bayou

Warehouse

Proctor

Browns

CHICAGO ROCK ISLAND AND PACIFIC

...and division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 40

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 41

41

CRITTENDEN COUNTY, ARKANSAS NO. 41

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

2 495 000 FEET

295 000 FEET

R. 7 E.

R. 8 E.

(Joins sheet 36)

T. 6 N.

(Joins sheet 40)

(Joins sheet 42)

(Joins sheet 46)

2 515 000 FEET

280 000 FEET

N

Scale 1:20 000

1 Mile

5 000 Feet

Edmondson

PARADISE GARDENS CEMETERY

EDMONDSON CEMETERY

water

BAYOU

FIFTEENMILE DITCH

DITCH NO 15

DITCH NO 14

DITCH NO 13

DITCH NO 50

DITCH NO 49

DITCH NO 16

CHICAGO, ROCK ISLAND AND PACIFIC

ShA

ShU

AlA

AlU

TnU

TnA

Rn

Cm

BrA

BrU

Mh

W

21

22

23

24

19

28

27

26

25

30

33

34

35

36

31

N

(Joins sheet 37)

R. 8 E.

2 540 000 FEET

295 000 FEET

T. 6 N.

(Joins sheet 41)

(Joins sheet 43)

(Joins sheet 47)

2 520 000 FEET

280 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

0 0

¼ 1 000

½ 2 000

¾ 3 000

1 4 000

5 000

20 21 22 23 24

29 28 27 26 25

32 33 34 35 36

ShA AlA AlU TnA TnU DuA DuU BrA Be BrU ShU DsA Fo Cm Cr

DITCH NO 80

DITCH NO 49

DITCH NO 17

DITCH NO 15

DITCH NO 18

TENMILE BAYOU

CHICAGO ROCK ISLAND AND PACIFIC

MISSOURI PACIFIC

water

Riverside

Mounds

Sunrise Church

New Salem Church

Galet

Hulbert

Quarles

Lake Grove Church

Amboco

Fletcher Lake

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 43

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

R. 8 E. | R. 9 E. *(Joins sheet 38)* | 2 545 000 FEET

295 000 FEET

T. 6 N.

(Joins sheet 42)

(Joins inset, sheet 44)

(Joins 44)

285 000 FEET

2 560 000 FEET

N

Scale 1:20 000

1 Mile

5 000 Feet

(44)

N

1 Mile
5 000 Feet
Scale 1:20 000

1 5 000 0 ¾ 4 000 ½ 3 000 ¼ 2 000 0 1 000

(Joins sheet 39) R. 9 E. 2 575 000 FEET

T. 6 N.

(Joins sheet 43)

SURVEY 2389

SURVEY 2317

MISSISSIPPI RIVER

SHELBY COUNTY INDEFINITE BOUNDARY TENNESSEE

295 000 FEET

285 000 FEET

2 565 000 FEET

(Joins sheet 43) R. 8 E. 2 545 000 FEET

T. 5 N.

(Joins sheet 47)

MISSISSIPPI RIVER

SHELBY COUNTY INDEFINITE BOUNDARY TENNESSEE

275 000 FEET

265 000 FEET

2 541 000 FEET

4000 AND 5000 GRID TICKS

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 45

CRITTENDEN COUNTY, ARKANSAS NO. 45

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

2 470 000 FEET

275 000 FEET

R. 7 E.

T. 5 N.

ST FRANCIS COUNTY

(Joins sheet 40)

(Joins sheet 48)

2 490 000 FEET

265 000 FEET

(Joins sheet 46)

45

N

1 Mile

5 000 Feet

Scale 1:20 000

1 5 000 ¼ 4 000 ½ 3 000 ¾ 2 000 1 1 000 0

DITCH NO 10

DITCH NO 9

DITCH NO 8

CUTOFF

BAYOU

FIFTEENMILE

LOST BAYOU

Bayou Cm

AlA
AlU
ShA
ShU
TnA
TnU
BrA
BrU
Cm
Rn
Ea
DuU

6
5
4
7
8
9
18
17
16
50

(46)

N

R. 7 E. | R. 8 E.

(Joins sheet 41)

2 515 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

0 0 ¼ 1 000 2 000 ½ 3 000 ¾ 4 000 1 5 000

(Joins sheet 45)

2 500 000

T. 5 N.

2 275 000 FEET

(Joins sheet 47)

2 265 000 FEET

(Joins sheet 49) | 2 495 000 FEET

New Bethel Church

Truevine Church

Newbern

Mt Olive Church

Brice

Louise

Patoka

Copperas Lake

Bayou

Tennille

Birch River

FIFTEENMILE BAYOU

MISSOURI PACIFIC

ShA TnU TnA BrA Cm Rn Mh BrU Bp Bw Sk Tu Cr

1 2 3 4 5 6 7 9 10 11 12 13 14 15 16 18

Land division corners are approximately positioned on this map

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station

CRITTENDEN COUNTY, ARKANSAS NO. 46

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 47

47

N

R. 8 E.

2 520 000 FEET

T. 5 N.

275 000 FEET

(Joins sheet 42)

(Joins sheet 46)

(Joins sheet 50)

2 540 000 FEET

265 000 FEET

(Joins inset, sheet 44)

Scale 1:20 000

1 Mile

5 000 Feet

Decker Bayou

Fletcher Bayou

Fletcher Lake

Swan Lake

Long Lake

Grassy Lake

Ash Slough

St Johns Church

Millers

Waverly

MISSISSIPPI RIVER

INDEFINITE BOUNDARY

TENN

CO

SHELBY

water

ShA TnU Cm AlU ShU AlA DuA DsA DuU TnA Rn BrA BrU Fo Be Bp Co Bw Sk Cs Tu Cr DsU

CRITTENDEN COUNTY, ARKANSAS NO. 47

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

N

1 Mile
5 000 Feet
0
0
Scale 1:20 000
¼ 1 000
½ 2 000
¾ 3 000
1 4 000
5 000

250 000 FEET

2 470 000 FEET

R. 7 E.

(Joins sheet 45)

2 490 000 FEET

260 000 FEET

T. 5 N.

ST FRANCIS COUNTY

(Joins sheet 49)

(Joins sheet 51)

19 20 21 28 29 30 31 32 33

ShA ShU TnU TnA BrU BrA Ea DsU Cm Rn

Kate

Topps

Friendship Church

Simsboro

Chatfield Church

Mallory Spur

Chatfield

Lost

Bayou

Boggy

FIFTEENMILE BAYOU

MISSOURI PACIFIC

50 79 79

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 49

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map

(50)

N

(Joins sheet 47)

R. 8 E.

2 540 000 FEET

(Joins sheet 49)

T. 5 N.

250 000 FEET

1 Mile
5 000 Feet
0
0
Scale 1:20 000
1
¾
½
¼
0
5 000
4 000
3 000
2 000
1 000

250 000 FEET

2520 000 FEET

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 50

CRITTENDEN COUNTY, ARKANSAS NO. 51

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

2 470 000 FEET

245 000 FEET

R. 7 E.

(Joins sheet 48)

T. 4 N.

ST. FRANCIS COUNTY

MISSOURI PACIFIC

BAYOU

FIFTEENMILE

Bogay Bayou

Highland Farm

Green River Plantation

Green River Church

water

(Joins sheet 52)

(Joins sheet 53)

235 000 FEET

2 490 000 FEET

1 Mile

5 000 Feet

Scale 1:20 000

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 52

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 52

CRITTENDEN COUNTY, ARKANSAS NO. 53

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Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

N

(Joins sheet 52)

R. 7 E. | R. 8 E.

2 515 000 FEET

T. 4 N.

230 000 FEET

(Joins sheet 53)

2 495 000 FEET

(Joins sheet 57)

(Joins sheet 55)

1 Mile

5 000 Feet

Scale 1:20 000

220 000 FEET

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

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CRITTENDEN COUNTY, ARKANSAS NO. 55

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Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

(56)

N

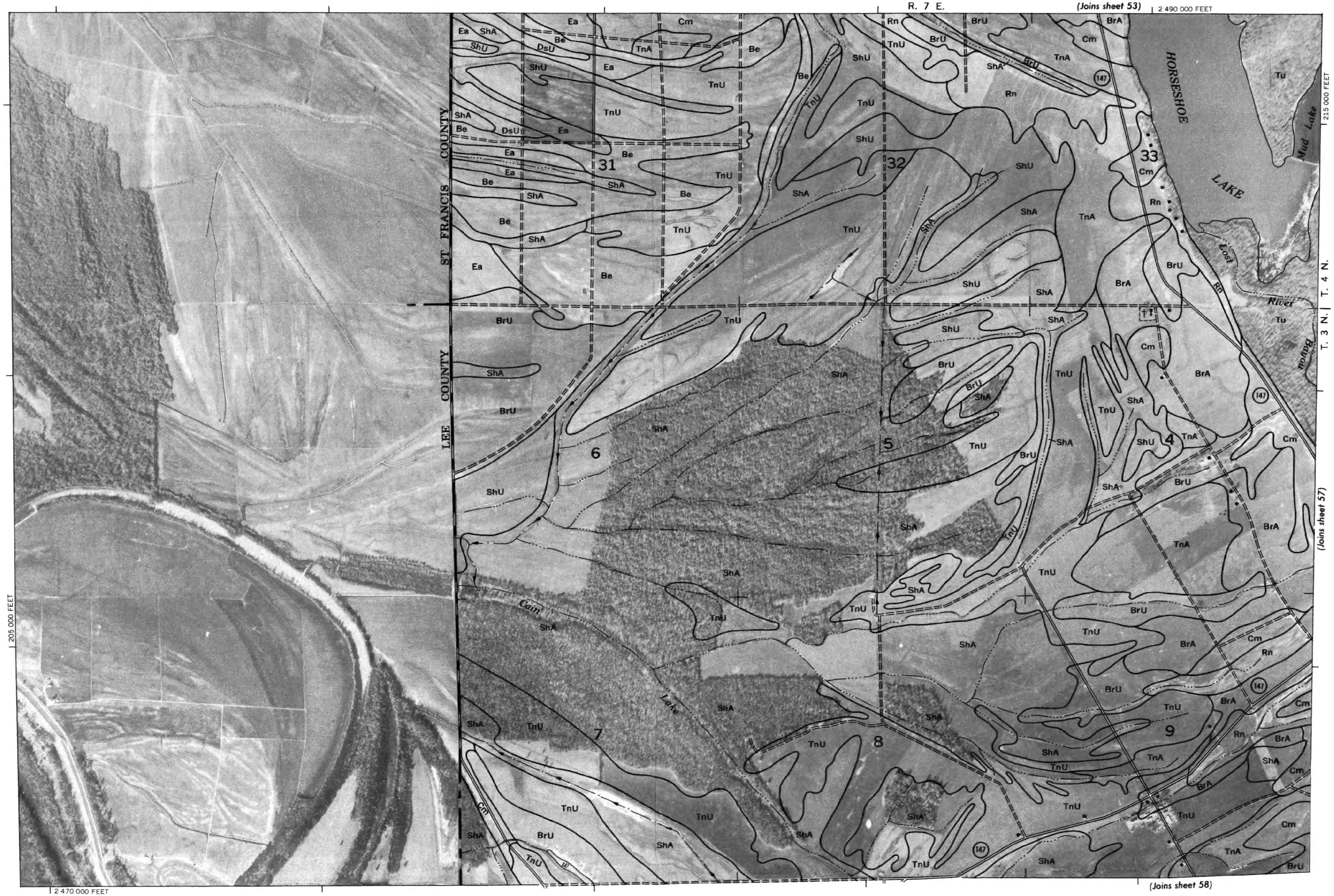
1 Mile

5 000 Feet

Scale 1:20 000

0 ¼ ½ ¾ 1

0 1 000 2 000 3 000 4 000 5 000



Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS — SHEET NUMBER 57

CRITTENDEN COUNTY, ARKANSAS NO. 57

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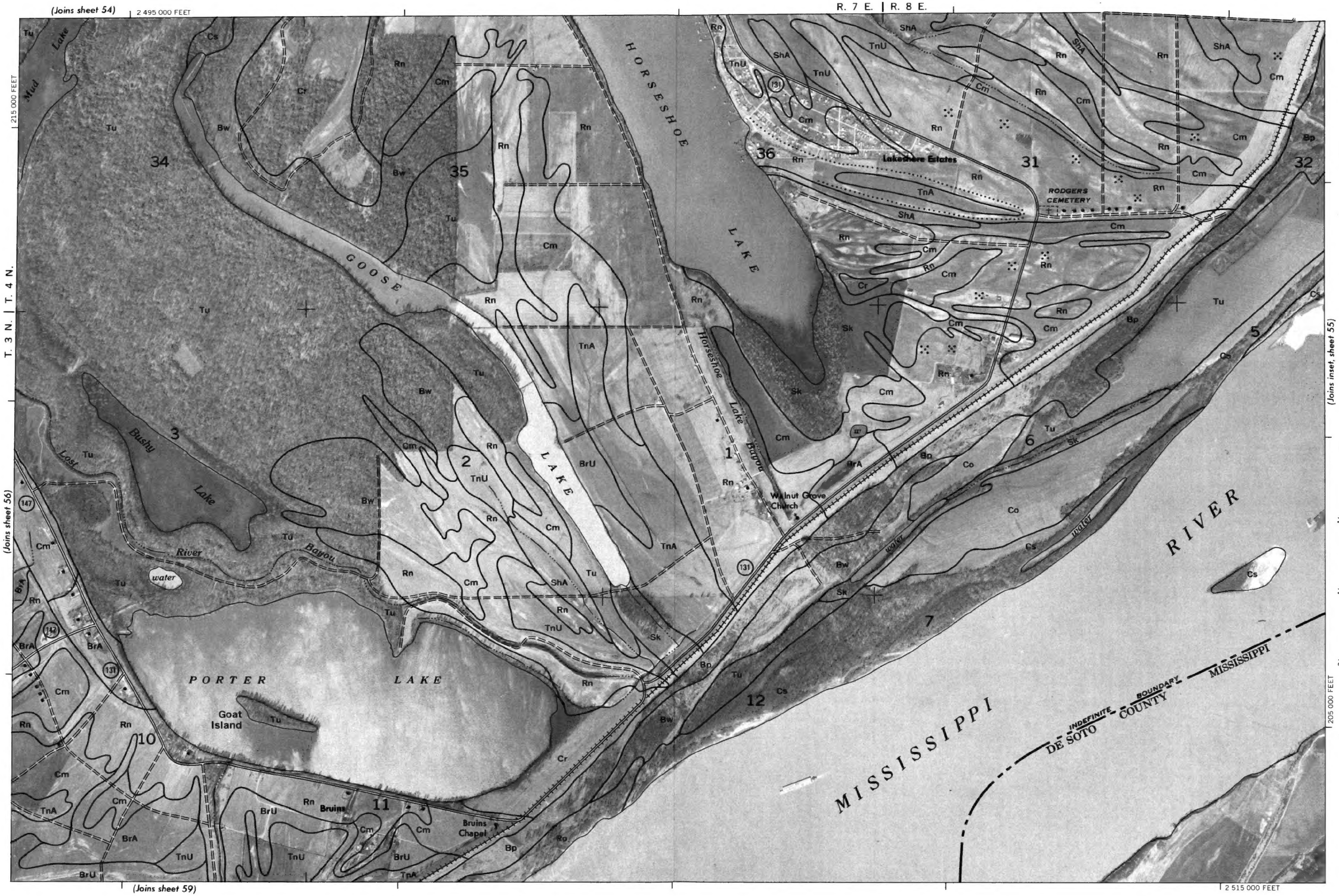
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.



58

N

1 Mile

5 000 Feet

Scale 1:20 000

R. 7 E.

(Joins sheet 56)

2 490 000 FEET

2 200 000 FEET

T. 3 N.

(Joins sheet 59)

2 190 000 FEET

2 470 000 FEET

LEE COUNTY

TUNICA COUNTY

MISSISSIPPI RIVER

MISSISSIPPI

Happy Church

147

17

18

16

21

20

19

TnU TnA ShA BrU BrA Cm Cr Rn Cs Bo Co Ro Tu

Land division corners are approximately positioned on this map.

Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.

CRITTENDEN COUNTY, ARKANSAS NO. 58

CRITTENDEN COUNTY, ARKANSAS NO. 59

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the Arkansas Agricultural Experiment Station.
Photobase from 1971 aerial photography. Positions of grid ticks are approximate and based on the Arkansas coordinate system, north zone.
Land division corners are approximately positioned on this map.

(Joins sheet 57) 2 495 000 FEET

R. 7 E.

200 000 FEET

T. 3 N.

(Joins sheet 58)

MISSISSIPPI RIVER

INDEFINITE BOUNDARY

DE SOTO CO MISS
TUNICA CO MISS

BUCK ISLAND NO 53

Old River Lake

13 14 15 24

TnA TnU BrU ShA Rn Ro Bp Cs Co Sk Bw Tu

2 515 000 FEET

190 000 FEET

N

1 Mile

5 000 Feet

Scale 1:20 000

1 ¾ ½ ¼ 0 0 5 000 4 000 3 000 2 000 1 000